This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

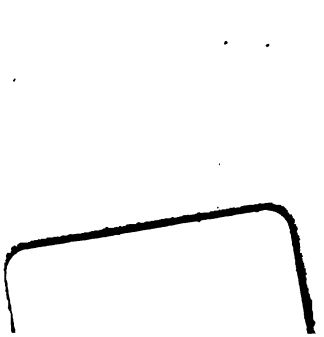
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

The Military Surgeon

Association of Military Surgeons
of the United States

Digitized by Google

BOSTON
MEDICAL LIBRARY
8 THE FENWAY



Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

THE MILITARY SURGEON

JOURNAL OF THE

ASSOCIATION OF MILITARY SURGEONS

OF THE UNITED STATES

EDITED BY

CHARLES LYNCH

VOLUME XXX

WASHINGTON, D. C.
THE ASSOCIATION OF MILITARY SURGEONS
1912

Digitized by Google

BOSTON MEDICAL LIBRARY
FEB - 1 1916

CATALOGUED
FEB 21 1916
J. F. B.

Contributors

FIRST LIEUTENANT MAHLON ASHFORD, U. S. A.
FIRST LIEUTENANT JOHN R. BARBER, U. S. A.
MEDICAL DIRECTOR HENRY G. BEYER, U. S. N.
DR. G. M. BLECH, AMERICAN RED CROSS FIELD CORPS.
MAJOR WESTON P. CHAMBERLAIN, U. S. A.
CAPTAIN CLARENCE L. COLE, U. S. A.
FIRST LIEUTENANT ALEXANDER T. COOPER, U. S. A.
CAPTAIN LOUIS C. DUNCAN, U. S. A.
MAJOR J. F. EDWARDS, N. G. PA.
MAJOR P. C. FIELD, U. S. A.
FIRST LIEUTENANT SANFORD W. FRENCH, U. S. A.
FIRST LIEUTENANT CLARENCE E. FRONK, U. S. A.
SURGEON W. M. GARTON, U. S. N.
LIEUTENANT COLONEL JOSEPH A. HALL, N. G. OHIO.
ASSISTANT SURGEON REGINALD B. HENRY, U. S. N.
MAJOR DEANE C. HOWARD, U. S. A.
LIEUTENANT COLONEL J. R. KEAN, U. S. A.
FIRST LIEUTENANT CHARLES G. LEVISON, U. S. A.
MEDICAL INSPECTOR CHARLES H. T. LOWNDES, U. S. N.
MAJOR WILLIAM LYSTER, U. S. A.
FIRST LIEUTENANT RAY W. MATSON, U. S. A.
MAJOR R. W. MONTELIUS, N. G. PA.
CAPTAIN W. P. MORRILL, N. G. MD.
MAJOR EDWARD L. MUNSON, U. S. A.
CAPTAIN HENRY J. NICHOLS, U. S. A.
SURGEON EDWARD G. PARKER, U. S. N.
MAJOR ROBERT U. PATTERSON, U. S. A.
PASSED ASSISTANT SURGEON W. S. PUGH, U. S. N.
CAPTAIN MATHEW A. REASONER, U. S. A.
PASSED ASSISTANT SURGEON P. S. ROSSITER, U. S. N.
CAPTAIN EDWARD B. VEDDER, U. S. A.
CAPTAIN F. W. WEED, U. S. A.
SURGEON CHARLES P. WERTENBAKER, U. S. P. H. & M.-H. S.
FIRST LIEUTENANT H. R. WESTON, U. S. A.

Digitized by Google

ASSOCIATION OF MILITARY SURGEONS

OF THE UNITED STATES

Incorporated by Act of Congress.

21st Annual Meeting, Baltimore, Md., October 1st to 4th, 1912

Officers 1911-1912

President,
SURGEON CHARLES P. WERTENBAKER,
PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

First Vice President,
SURGEON W. C. BRAISTED,
UNITED STATES NAVY.

Second Vice President,
BRIGADEIR GENERAL CHARLES ADAMS,
MEDICAL DEPARTMENT, NATIONAL GUARD OF ILLINOIS.

Third Vice President,
LIEUTENANT-COLONEL J. R. KEAN,
MEDICAL CORPS, UNITED STATES ARMY.

Secretary and Editor,
MAJOR CHAS. LYNCH,
MEDICAL CORPS, UNITED STATES ARMY.

Assistant Secretary,
SURGEON T. W. RICHARDS,
UNITED STATES NAVY.

Treasurer,
MAJOR HERBERT ALONZO ARNOLD,
MEDICAL DEPARTMENT, NATIONAL GUARD OF PENNSYLVANIA,
ARDMORE, PENNSYLVANIA.

Digitized by Google

Association of Military Surgeons

of the United States

21st Annual Meeting, Baltimore, Md., October 1st to 4th 1912.

Officers and Committees

President

Surgeon Charles P. Wertenbaker, U. S. P. H. & M. H. S., Norfolk, Va.

First Vice-President

Surgeon W. C. Braisted, U. S. N., Washington, D. C.

Second Vice-President.

Brig. Gen. Charles Adams, N. G. Ill., Chicago, Ill.

Third Vice-President.

Lieutenant Colonel J. R. Kean, U. S. A. Washington, D. C.

Secretary.

Major Charles Lynch, U. S. A., Washington, D. C.

Treasurer.

Major Herbert A. Arnold, N. G. Pa., Ardmore, Pa.

Assistant Secretary.

Surgeon T. W. Richards, U. S. N., Washington, D. C.

EX-PRESIDENTS

Brig. Gen. George M. Sternberg, U. S. A., Ret., 1894-5.
Brig. Gen. J. D. Griffith, N. G. Mo., 1897-99.
Col. John Van R. Hoff, U. S. A., 1901-02.
Maj.. Gen. Robert A. Blood, M. V. M., 1902-03.
Med. Dir. John C. Wise, U. S. N., Ret., 1903-04.
Lieut. Col. Albert H. Briggs, N. G. N. Y., 1905-06.
Col. Valery Havard, U. S. A., Ret., 1906-07.
Dr. George T. Vaughan, 1907-08.
Surg. Gen. P. M. Rixey, U. S. N., Ret., 1908-09.
Col. Joseph K. Weaver, N. G. Pa., 1909-10.
Brig. Gen. George H. Torney, U. S. A., 1910-11.

ADVISORY BOARD

Hon. Franklin MacVeagh, Secretary of the Treasury.
Hon. Henry L. Stimson, Secretary of War.
Hon. George v. L. Meyer, Secretary of the Navy.
Surg. Gen. George H. Torney, U. S. A.
Surg. Gen. Charles F. Stokes, U. S. N.
Surg. Gen. Rupert Blue, U. S. P. H. & M. H. S.

EXECUTIVE COUNCIL

The officers of the Association, ex-officio, and

Maj. Paul F. Straub, U. S. A., General Staff, Washington, D. C.
Med. Dir. W. R. Du Bose, U. S. N.
Asst. Surg. Gen. J. W. Kerr, P. H. & M. H. S.
Lieut. Col. J. A. Hall, N. G. Ohio.
Lieut. Col. William G. Schauffler, N. G. N. J.
Maj. Thomas C. Clark, N. G. Minn.

STANDING COMMITTEES

Literary Committee.

Asst. Surg. Gen. J. W. Trask, P. H. & M H. S., Washington, D. C.
Capt. A. G. Love, U. S. A.
P. A. Surg. Ralph W. McDowell, U. S. N.
Maj. W. S. Conkling, N. G. Iowa.
Maj. Charles W. Decker, N. G. Cal.
Capt. A. H. Lindorme, N. G. Ga.
Lieut. M. W. Houghton, Naval Militia, R. I.

Publication Committee.

Maj. Charles Lynch, U. S. A.
Surg. Robert M. Kennedy, U. S. N.
Asst. Surg. Gen. J. W. Trask, P. H. & M. H. S.
Maj. Romulus A. Foster, N. G. D. C.

Necrology Committee.

Maj. Samuel Cecil Stanton, N. G. Ill., 640 Sheridan Road, Chicago, Ill.
Capt. A. G. Love, U. S. A.
Surg. Arthur W. Dunbar, U. S. N.
A. A. Surg. W. H. Marsh, P. H. & M. H. S.

SPECIAL COMMITTEES

Committee on Legislation.

Lieut. Col. Henry Allers, N. G. N. J., Harrison, N. J.
Col. James B. O'Neill, N. G. Maine.
Brig Gen. E. C. Brush, N. G. Ohio, Ret.
Lieut. Col. Wilbur S. Watson, N. G. Conn.
Brig. Gen. Charles C. Foster, N. G. Mass.
Col. Henry Bacon, N. G. Fla.
Brig. Gen. F. J. Lutz, N. G. Mo.
Lieut. Col. David S. Fairchild, N. G. Iowa.
Maj. D. S. Burr, N. G. N. Y.
Maj. Homer I. Jones, N. G. Ind.
Lieut. Col. A. S. Stayer, N. G. Pa.
Maj. Gilbert E. Seaman, N. G. Wis.

Digitized by Google

ARMY MEDICAL CORPS EXAMINATION.

THE Surgeon General of the Army announces that preliminary examinations for the appointment of first lieutenants in the Army Medical Corps will be held on July 15, 1912, and September 3, 1912, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training, after graduation. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of the Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present sixty-eight vacancies in the Medical Corps of the Army.

Digitized by Google

Faught Pocket Blood Pressure Apparatus

Built like a watch on the Aneroid principle, not a Spring Instrument. Can be carried in the pocket. Simple accurate and easy to use. Always reliable. Adjusted in a moment. Just like taking a pulse. Price, complete, with arm band and inflating pump, in durable morocco case . . . **$22.50 net**

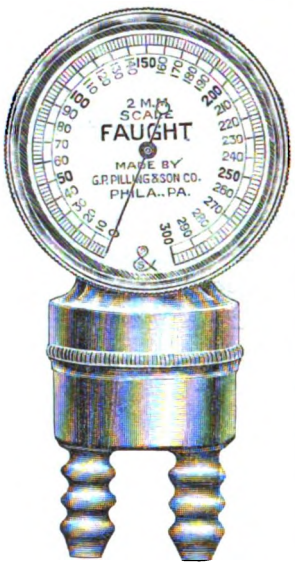
also

Faught Standard Mercury, $20.00 net
Pilling Special No. 1 Mercury, 15.00 net
Pilling " No. 2 " 12.00 net
Faught's Book on Blood Pressure, 25 cts.

Signed certificate by Dr. Faught with every instrument

FAUGHT'S BOOK ON BLOOD PRESSURE FREE WITH EVERY APPARATUS

Made only by



ACTUAL SIZE

G. P. PILLING & SON CO., Philadelphia, Pa.

AMERICAN RED CROSS

Large First Aid Box
FOR INDUSTRIAL PLANTS
PRICE $6.00

FIRST AID BOOKS & SUPPLIES

For the

RAILROAD MAN
FACTORY MAN
MINER and
All Other Industrial Employees

Also

THE HOUSEWIFE
THE TEACHER and
THE BOY SCOUTS

Illustrated Catalogue Mailed on Request

AMERICAN RED CROSS
First Aid Department
Washington, D. C.

Digitized by Google

BOSTON MEDICAL LIBRARY
FEB - 1 1916

The Military Surgeon

Vol. XXX. JANUARY, 1912 No. 1

ORIGINAL ARTICLES.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

THE CONDUCTION OF FIELD MANEUVERS OF MILITIA SANITARY TROOPS.*

By Major EDWARD L. MUNSON, Medical Corps, Director, Field Service School for Medical Officers, Fort Leavenworth, Kansas.

AT the request of Lieutenant Colonel J. A. Hall, Chief Surgeon, Ohio National Guard, I am venturing to offer a few suggestions on the above subject; leaving to his paper the discussion of how these general suggestions, with the ideas which they embody, were worked out in actual practice at the camp of the Ohio sanitary troops last summer.

Inasmuch as opportunity for any extended field sanitary maneuvers is not normally presented to the Organized Militia more than once a year, either at general or state maneuver camps; and since such maneuver period is, at its best, extremely brief, it is highly important that the time and energy of the sanitary personnel should be conserved, and that no exercise should appear in the schedule which could as well be carried out by medical officers and Hospital Corps men at their armories or home stations.

The work at maneuver camps should represent culmination of the instruction given during the previous year, and in such a manner that instruction in theory, and in the formal military methods of accomplishing certain more or less dissociated medico-

*Read at the 20th Annual Meeting.

Digitized by Google

military results, may here find themselves coordinating on a practical basis and vivified by assumed conditions closely approximating such as might fairly be expected to arise in war. Thus previous training in set first aid dressing, formal litter drills, tent pitching, ambulance work, the establishment of relief stations, etc., should here find its final legitimate and coördinate expression in the actual handling, collection and removal of a large number of cases of suppositious injuries under conditions similar to those which might readily be encountered in actual campaign.

It may be accepted that the average maneuver camp of the organized militia will extend over a week of six secular days. Of this short period, practically the first and last days will be occupied in detraining and entraining and in making and breaking camp. There are four days remaining which are available for sanitary maneuvers.

To secure the maximum benefit from the limited time available, it is desirable that such maneuvers as are possible should be rapidly progressive in character, so as to exemplify the more important phases of sanitary work extending from the smaller up to the larger tactical units. To refresh the memories of the better instructed, and to give the newer personnel a better understanding of the work which is to come, a series of lectures should be had giving a full explanation in the theory of the general purposes and methods which are about to be specifically applied in practice in individual concrete cases. Thus a discussion of sanitary work with the battalion, on Monday afternoon, should be followed on Tuesday morning by a battalion sanitary problem; an explanation, on Tuesday afternoon, of the sanitary service with the regiment should be followed on Wednesday morning by sanitary maneuvers based on such combatant organization; a discussion of ambulance companies and stations for slightly wounded, held Wednesday afternoon, should precede the field problem of Thursday morning, covering the primary and secondary lines of sanitary relief with the reinforced brigade; a conference on field hospitals and the reserve sanitary supplies, held Thursday afternoon, should prepare the way for a problem, on Friday morning, covering all the establishments for sanitary relief from the firing line to the advance base. If limited number of sanitary troops or other considerations render the carrying out of the above scheme im-

Digitized by Google

practicable, simpler problems relating to smaller units can be substituted for the two last suggested.

It is the opinion of the writer that practical work in sanitary maneuvers is, in the large majority of cases, best carried out by sanitary troops alone. Where they are attached to combatant troops in general problems, it usually results in practice that the tactical problem is solved, "recall" sounds and the combatant troops start back for camp and dinner about the time that the work of value to the sanitary service should logically begin. Some commanders of combatant organizations are desirous of having their medical officers and Hospital Corps men present at all the field exercises of their commands, under the idea of having plenty of assistance available in the improbable contingency that serious accidents occur. This idea should be catered to only to the extent of sending a medical officer and ambulance out with a regiment, for time spent by sanitary troops under such conditions is practically wasted so far as their own instruction in field work is concerned. Combatant troops usually undertake problems which imply their working into battle contact and are then called off. The sanitary personnel attached under such conditions stands around more or less helpless, seeing little for itself to do and at a loss to understand its real functions and why it had been ordered out with the combatant command. It sees no gain—but rather belittlement and humiliation—in being marched out and back in the heat and dust merely to have the very real part which it ought to play disregarded or forgotten. It can learn far more if left to itself and the tactical direction of its own medical officers in the solution of sanitary problems of an independent nature. In the later stages of sanitary training it is true that the sanitary troops should at times accompany the appropriate combatant organizations; but under such conditions, it should be distinctly understood in advance that the problem to be solved is a joint one, and it should be planned in advance—as can be done without any detriment to the tactical end of things—so as to bring the functions of all concerned into play. For example, it is quite possible to have the last problem of the week one of occupancy of a defensive position, in which, after the troops are in place, the command "commence firing" gives the signal to the Medical Department to begin work, and in which for a reasonable period, say an hour and a half, tag-

Digitized by Google

ged "wounded" are successively fallen out along the lines, dressed, collected, and evacuated back to camp in an appropriate way. Assumption that the enemy has then been repulsed would conclude the problem. Such problems as the latter would not only afford joint training but would be valuable as demonstrating to officers and men of the line the methods of sanitary field service, together with its actual efficiency in caring for them should they be injured.

At the outset of the series, the problems should not be too difficult. In the experience of the writer, no great difficulty need be apprehended in carrying out battalion problems. Here the medical officer designated as battalion surgeon is able to do a large part of the first aid and relief work himself, assisted by his orderly, one sergeant, four privates and a single ambulance. The doctor in civil life—and the militia medical officer in his general practice—largely shines professionally by virtue of his own individuality and manual dexterity; and as battalion surgeon it is no great administrative task for such to direct the efforts of a small handful of sanitary subordinates. But things begin to change with the regimental sanitary problem, the regimental surgeon having less personal professional responsibility over cases themselves as he is called upon to give greater attention to directing and coördinating the energies of three junior medical officers, and twenty-four enlisted men, and three ambulances with their drivers, upon whom the great bulk of actual work must fall. With this more complex situation, various conditions affecting sanitary action begin to be overlooked, orders by the senior surgeon are apt to be delayed or incomplete and to be misunderstood by subordinates, messengers fail to reach persons and places to which they have been sent and tend to amend or forget the verbal directions which they have been charged to transmit, touch may be lost between the several sanitary groups and between the regimental surgeon and regimental headquarters. Such mistakes indicate the difficulty which the untrained sanitary personnel at once encounters when their incorporation into a larger administrative group forces individuality to become subordinate to the workings of a military machine. When ambulance companies and field hospitals begin to enter into the scheme of things, the sanitary problem becomes at once still more complex, not only by reason of

Digitized by Google

the greater number of "wounded" and sanitary personnel and organizations engaged and requiring consideration, but also by reason of the fact that the factors of time and distance assume much greater importance. Under these last conditions, the medico-military machine will probably creak loudly in its operation, illustrating the undeniable fact that—however excellent as individuals its component medical officers and enlisted men may be—without suitable training they will fall short of the ideal in their efforts to work together and to achieve a common object under a single directing head. For this administrative shortcoming nothing but actual field work along the lines here outlined can furnish the remedy. Only practice in the handling of scattered but coördinating sanitary groups will bring about successful accomplishment of the results required.

The preparation of suitable sanitary problems is not an easy task, but is by no means beyond the capacity of specially qualified medical officers. Every sanitary problem must have a basis on a tactical situation. The latter may be specially planned to illustrate any particular feature of sanitary methods and tactics desired; conversely any purely tactical problem may be used as a foundation on which to base a further inquiry in respect to the coordinate sanitary tactics necessary. This latter form of problem is often of very great value and requires least thought and study for preparation. It is not always easy, however, to find tactical problems at hand which will fully meet the needs of the sanitary officer desirous of formulating a graded or progressive course in the special tactics of his own service. In conjoint field maneuvers with combatant troops, the sanitary service will usually have to accept for its own work the tactical problems presented to the command as a whole; though, as elsewhere mentioned, these can often be modified in the interest of the sanitary service with no detriment to the general tactical situation concerned.

The preparation of special sanitary problems is in itself excellent training for the solution of others of similar character, for the processes of reasoning and deduction concerned, though reversed, must naturally move along the same lines of thought and study. But the preparation of special sanitary problems should imply a certain knowledge of the elements of general tactics. It is quite true that whether the tactical management of troops be good or

Digitized by Google

bad, the sanitary service must follow the commander's plays; but problems for medical officers should possess the dual purpose of endeavor to teach good general as well as good sanitary tactics. Hence it is always desirable to ensure, by one or another way, that the tactical premises assumed in sanitary problems under preparation are correct. Usually competent line officers can be found to advise in this matter.

In the general consideration of the formulation of problems there are only a few main dispositions of troops upon which accessory disposition of the sanitary service need be made. In general terms, these are advance guard formation and attack, and rear guard formation and occupation of a defensive position. Success and defeat, partial or complete, bring their special conditions. All the rest particularly depends upon the coordinating factors of size, character and disposition of troops, terrain, routes of evacuation, character of roads, length of line of communications, quality of service of communications, climate, season, weather, physical state of troops, the limit of time available and similar modifying conditions. Some or all of these factors must appear in the construction of all problems.

In planning a series of problems, care must be taken that they do not cause undue repetition of similar situations.

In respect to the details necessary to the proper preparation of special sanitary problems, the following points should receive consideration:—

(1) The problem should possess a semblance of reality. It should be a situation which might naturally arise in a state of war.

(2) It should be as simple and brief as possible. Complicated and involved statements are generally unnatural and are fruitful sources of misunderstanding.

(3) It should advantageously illustrate that principle or principles of sanitary tactics concerning which special study is desired. The solution of a problem is a lesson.

(4) It must be made as instructive as possible. This means the leaving to the officers participating as many of the decisions as the time allows, and as much latitude as may be necessary to force them into positions where they must exercise their own judgment and skill.

Digitized by Google

(5) It should be adapted to the number and character of the troops assumed to be involved. Abnormal sanitary situations are the exception and not the rule.

(6) It should contain only such information as the commander of the troops, or his sanitary subordinates specially concerned, might be supposed to possess. The proper employment of the resources of the sanitary service as an accessory means of procuring and transmitting sanitary information is one of the most important lessons for the medical officer to learn.

(7) If contact with the enemy is assumed to have resulted, this should be on ground which is tactically permissible. It is highly undesirable, with terrain more naturally adapted to military operations in the immediate vicinity, to stage a battle with its consequent sanitary activity on ground over which commanders would not naturally elect to fight.

(8) It should introduce as few unnatural conditions as possible. The desirability of this is apparent, since one of the chief functions of sanitary tactics is to teach medical officers how properly to judge and utilize ground, either as represented by maps or by the terrain itself.

(9) It must include the disposition of the troops and sanitary personnel upon whom the problem and its solution depends. The reason for this is obvious.

(10) It can often be made progressive, new situations being unfolded at suitable intervals. This teaches not only quick decision, but willingness to promptly abandon preconceived ideas as actual developments may demand it.

Specific information as to how to prepare special sanitary problems cannot be given, since no two medical officers would probably go about such a task in the same way. But it is well to first gain a clear idea of what desired to illustrate, and how, in general terms, this should be done. Next the map and the ground should be studied to find terrain well adapted to the purpose. Then the combatant troops are located thereon in such way as best to illustrate the principle. A hypothesis is then assumed in a way to make the above situation occur naturally and in a manner and under circumstances likely to occur in war. The whole is then checked up in detail, to see that each factor coordinates with the rest in fulfilling the general conditions assumed. Finally, the re-

Digitized by Google

quirements of the problem, for the solution of which the assumed conditions furnish the necessary data, are then set forth in as few words as possible.

A good military map of the maneuver ground is as essential to the work of the sanitary service as to that of any other part of the military forces. The larger the scale of this map, the better. Such a map will not only greatly facilitate the preparation of problems by the Director of Problems, but will materially assist in their proper solution by those concerned. And the frequent recourse made to it by the observers will be of much value in promoting that ability to read maps, and apply such knowledge to the terrain, of which the average medical officer stands in much need. Permanent maneuver grounds have usually been already mapped. Maps of unmapped temporary maneuver grounds can usually be secured through the engineer forces of the State, or other qualified officers, as a result of proper representation to the Adjutant General of the State. In the great majority of cases government maps of the area concerned can be obtained from the U. S. Geological Survey, Washington, D. C. The maps of county surveys, or even automobile road maps, will often be obtainable and of service where military maps are not available. It is not necessary for the purposes of the Medical Department that a very large area should be mapped. If the terrain be well suited to military operations, the mapping of a couple of square miles should be quite sufficient for a week of manuevers and problems assuming forces as large as a reinforced brigade.

No sanitary problem should be given out in advance of the actual arrival of the sanitary command on the field. The tactical situation assumed—as for example, with a planned defence—might in some cases be legitimately given out the night before, thereby permitting of certain general sanitary plans and preparations; but the special sanitary situation should be developed with little warning, as would be the case in actual war. This implies a valuable practice by the medical officers assigned to solve the problem, not only in the rendering of suitable decisions and orders, but in the rendering of them under the stimulus and difficulties of immediate necessity. To further this latter end, it is desirable to formulate some problems in such a way that the watch will be held on the medical officer concerned and he be given a

Digitized by Google

fixed period, of say three to five minutes, in which he must reach and announce his decision and plans and issue his instructions and orders.

A most important feature of field sanitary work which should not be overlooked, and which the relatively small number and usual high degree of intelligence of sanitary troops permits of being readily carried out, consists in fully informing all enlisted men as to the nature of the field problems propounded for solution. Too often the soldier is entirely ignored in such matters, with the result that field work is meaningless to him other than as it implies much apparently purposeless marching and hard and disagreeable labor. Under such conditions, it is not to be wondered, at if the sanitary soldier soon fails to regard field problems with any high degree of anticipation and enthusiasm. His energy slacks, and the work he performs is apt to become purely perfunctory and compulsory rather than animated by personal interest and zeal. But it needs no great expense nor effort to prepare and distribute copies of problems to each enlisted man as well as officer, either as participant or observer.

When a situation is changed, the soldier should be given such further information as the Director of Problems gives out for general knowledge relative to the new or progressive change in affairs. With such information, the soldier's attention and personal interest are aroused and he far better realizes and more satisfactorily plays his individual part as one of the actors in the military drama which the problem stages. To help achieve a result of the nature and purpose of which he is informed, he will cheerfully undertake and scrupulously execute the very severe labor involved in actually collecting and removing the supposititious wounded, which under other conditions he might tend to avoid.

While ultimately all medical officers should be given personal practice in the solution of field sanitary problems, it is very desirable, at the beginning of such work, that such as are best equipped to do justice to the subject should receive the assignments to the earlier problems. The fact should not be overlooked that the participants, while improving themselves in field duties, are also demonstrators of principles and methods to their confréres occupying the position of observers. They are actors in a military play, and interest therein and the value thereof will largely depend

Digitized by Google

upon how intelligently they formulate and play their parts. The making of ordinary mistakes is not only to be expected but is valuable, as illustrating methods and matters to avoid; but marked incapacity on the part of participant officers is ruinous to the problem of the day, destructive of the information which might otherwise have been derived therefrom, and calculated to provoke disgust and ridicule among all concerned. The less well prepared should therefore be given opportunity to learn the general principles of field work by observation of reasonably efficient methods as executed by others before they are themselves called upon to play the active parts. That more can be learned by them during a few hours of actual demonstration than in a much greater time spent in theoretical study can probably be accepted. A clearer application of the principles of sanitary tactics can be secured in this way than by any other means.

On the part of the observers, it is important that they be not content to act as simple witnesses of a medico-military spectacle, but enter into it by thinking out for themselves, in advance and independent of any moves made on the field, such course of action as they would have instituted had they themselves been responsible for the solution of the problem in question.

The sanitary detachments and organizations participating in sanitary maneuver problems should, where practicable, be brought up to full war strength for the purpose. The problems being ones of war, they are based on war conditions. This assumes war strength of combatant forces, an appropriate number of casualties based thereon, firing lines having frontage according to the maximum number of rifles in the organizations assumed as present, a maximum road space required by them in marching columns, etc. To attempt to solve a situation based on the theroretical war maximum with a sanitary personnel actually deficient numerically or at the peace minimum will invite misapprehension. It is also a valuable object lesson for all concerned to see before them and in operation, sanitary detachments and organizations of the full size, and possessing all the equipment and transportation which they will be expected to use in time of war. For this purpose, it is probably better to form complete provisional organizations for the problem of the day, or temporarily reinforce existing ones by drafts from others.

Digitized by Google

A medical officer, specially qualified for such work, should be detailed as Director of Problems for the maneuver period. He should have such assistants as may be necessary. His duties include the preparation of the problems; requests to the Chief Surgeon for the assignment of the necessary personnel, transportation and material at the time and place required; the general direction of all matters preliminary to the actual solution of the problem; and final decision as umpire in doubtful or disputed points arising during the solution of the problem. Upon him falls the brunt of the work, and upon his efficiency largely depends the practical value and success of the sanitary maneuvers.

Medical officers should be successively detailed to serve as Recorder of the problem for the day. The recorder makes written note of all happenings which bear on the proper solution of the problem, either falling under his own observation or reported to him by others. The time at which each and every movement is begun and the period required for its accomplishment, all orders, messages and reports, all mistakes, misunderstandings and delays, and similar matters, should be carefully set down by him at the time and summarized at the evening lyceum in an impartial statement of fact upon which discussion of the problem should be based.

The Chief Surgeon of the Camp sees that the organizations, personnel, equipment and transportation requested by the Director of Problems for use in connection with the problem of the day are given suitable orders to reach the designated point or points at the time required. With or without conference with the Director of Problems, he makes seasonable assignment of officers for participation in the solution of the problem of the day. He sees that sufficient diagnosis tags are properly made out for each problem He is responsible for the confidential preparation of a sufficient number of copies of each problem from the draft of the same furnished him by the Director of Problems, and he provides for the distribution of such copies at the proper time. He places all portions of his command actually on the terrain utilized in the problem of the day under the direct temporary control of the Director of Problems and the officers detailed as participants under him.

On reaching the terrain employed in the problem, one or more officers are placed in charge of the "wounded." The latter are not

Digitized by Google

to be allowed to fall out promiscuously and haphazard, but their proper distribution on the battlefield should be directly accomplished by the medical officers as above detailed. The Director of the Problem will know the assumed conditions of arms, military forces, distances, terrain, etc., and he can either give a map to the distributing officers showing where, and in what numbers, "wounded" should be fallen out, or he can point out these areas on the terrain itself. Under these precautions, "wounded" will be found in the areas in which they would naturally fall in battle over the same terrain, and a valuable tactical lesson will be illustrated.

"Wounded" should, as far as possible, be drawn from the Hospital Corps personnel not required as participants in the solution of the problem. As larger problems are reached and more wounded have to be handled, other sources of "wounded" must be drawn upon. This is first found in the bands, which are rarely required to accompany their regimental organizations in field problems. Finally, entire combatant organizations, without arms, may be detailed to this work; but in combined problems, the proper proportion of each organization participating is made to fall out under prearranged conditions of time and place.

Where the nature, scope and purpose of such problems is fully explained to line officers commanding, the full coöperation and assistance of the latter will rarely be withheld.

Medical officers and enlisted men of the sanitary troops, not engaged either in the solution of the problem or assigned to serve as "wounded," should be present at the maneuvers in the capacity of observers. They should be encouraged to comment and criticize among themselves, but must give no aid, verbal or actual, to those engaged in the solution of the problem. Usually some commanding point is available from which a good view of the whole field can be obtained. The observers should be grouped here without military formation but held together to facilitate the announcements and explanations which should be made from time to time during progress of the sanitary maneuvers by the Director of Problems. Any reasonable inquiries, by any one, calculated to clear up any doubtful parts of the problem should be encouraged.

Attendance by line officers as observers of purely sanitary prob-

Digitized by Google

lems should be invited. It is of the greatest importance to the success of the sanitary service in war that such officers not only appreciate the purposes of the Medical Department, but understand the methods by which it goes about to secure the accomplishment of the necessary results.

The diagnosis tags to be used in tagging "wounded" should be of the latest improved type. Most of the State troops are provided with those of old and obsolete pattern. The latter differ so materially from the new ones that only the latter should be used. The expense of new tags is trifling. We must not forget that maneuvers are not only a test of ideas, methods and men, but also are intended for practice in the use of material and supplies.

In the interest of realism, it is important that the suppositious injuries to be treated should closely resemble, in number, character and regional proportion, those which would be encountered in actual war. An analysis of some seven thousand cases reaching Japanese field hospitals gave the following regional percentage distribution:

Wounds of head and neck	15
Wounds of trunk	32
Wounds of upper extremities	25
Wounds of lower extremities	28

The above general distribution should be further divided under some twenty-five or thirty specific diagnoses, each written on a diagnosis tag in the form and with such brief clinical description as is required under the Manual for the Medical Department.

Of wounds of the upper and lower extremities about a third should be assumed to be fractures.

With regard to the classification of maneuver "casualties," we assume no "dead," who would normally be disregarded, but all that are assumed as hit are "wounded." For purposes of collection and transportation, we may roughly assume that ten per cent of the total "wounded" are unfit to stand transportation except over the shortest distances, and of the remainder one-third can walk any necessary distance, one-third require transportation sitting up, and for the remaining third transportation recumbent must be provided. The two last classes are to be classed as litter cases for purposes of collection. To prevent confusion on the field, and so that cases whose suppositious injuries are of such

Digitized by Google

character as would preclude their walking may not be sent in on foot, each diagnosis tag is made to indicate whether transportation should be given or not and the diagnosis thereon is made to conform accordingly. t is evident, therefore, that the preparation of diagnosis tags requires care and should be entrusted to experienced medical officers only.

As to the number of persons to be tagged, this should be decided on a ten per cent basis, as determined by the terms of the problem for the day. Ten per cent is taken because that amount of casualty is about the limit of what all but a veteran soldiery can be expected to sustain and still maintain its formation and a fighting efficiency. Thus for a battalion, some 50 casualties—or 40 wounded—should be handled; for a regimental problem, about 125 wounded; for a brigade, say 350. Where a large number of "wounded" are required, and the personnel to be detailed to serve as "wounded" is inadequate, a sufficient number of those brought in to collecting stations can be re-tagged and sent out a second time to serve the same purpose as "lay figures."

The dressings to be used in this field work should be strictly limited to those included in the first aid packet or are carried in the pouch of the sanitary soldier. Splints, of course, can and should be largely extemporized. Many of the State troops still have the old first aid packet with its triangular bandage. Under no circumstances should these be used either for purposes of instruction or at maneuvers. The sanitary soldier needs to be accustomed to the use of the equipment with which he will be provided in war. To expect him to use obsolete sanitary material is the same as expecting the combatant soldier to use a muzzle loading gun. Only the latest pattern first aid packets should be employed, and these should be expended without hesitancy. That they cost money is true—so do blank cartridges. The same government which supplies abundant blank ammunition to be expended for the purpose of the noisy spectacular is quite rich enough to furnish sufficient first aid bandages for actual practice in measures of life saving. First aid bandages are the ammunition of the Medical Department in the field, and it must not be deprived of training in their use by ideas of false economy.

To avoid too hasty and careless work in the dressing of injuries

Digitized by Google

by the Hospital Corps men, which would likewise tend to impair the value of the time factor arrived at in the solution of any problem, notice should be given in advance that the suitability and permanency of such dressings will be checked up by boards of medical officers detailed to take station and act at the various collecting points. The procedure required should be about as follows: After dressing the injury in accordance with the diagnosis entered on the diagnosis tag, the officer or sanitary soldier who handled the case must sign his name in the proper place on the tag. The medical board examining the dressing on arrival of the case at a collecting point will note on the back of the tag, in detail, any errors or defects in the character or application of the dressing. The tags and dressings are then removed from the "wounded"; the tags being preserved until the conclusion of the problem, when they are turned in to the Director of Problems, who can, by a few moments examination of them, determine exactly the relative proportion of cases which have been properly and improperly dressed, thereby arriving at a fairly accurate estimation of the state of efficiency in first aid work of the sanitary troops engaged. He then turns these tags over to the Chief Surgeon of the sanitary troops concerned, and through the office of the latter they are distributed, on the basis of the signatures of those giving the first aid entered on them, to the medical officers commanding or responsible for the instruction of the enlisted participants in the problem. The latter medical officers, at the conclusion of each problem and also the maneuvers as a whole, are thus in possession of a large amount of official data regarding the first aid proficiency of their commands, both as a whole and in their individual constituents. The tags tell not only the names of the men whose work was found unsatisfactory, but the conditions improperly handled, and not only show the individuals whose first aid training will need further attention after return of the command to its armory, but point out not only in a general way, but by specific examples, the character of the further instruction which they require.

A fundamentally important feature connected with the solution of a sanitary problem consists in the discussion which should follow it, in which comment and friendly criticism by all medical officers in attendance on the problem should be encouraged. I am

Digitized by Google

quite aware that in maneuvers by line troops such discussion is now carefully avoided, by reason of the bad feeling and personal recrimination which has at times resulted. But from personal knowledge of several maneuver camps, I am equally convinced that medical officers are above such petty bickering and squabbling. They are interested in learning, and appreciate that it is quite as important to have mistakes recognized and commented upon as to have suitable action noted and commended. Indeed we probably learn more through such mistakes than in any other way, for their emphasis through recognition and discussion makes it almost certain that they will not be repeated by participants or observers. It is not possible that these discussions can be made entirely impersonal, for all know who is responsible for action which may have to be alluded to in discussion as ill-judged or erroneous. But if all are informed at the outset of the maneuvers that the action of all participants is to be subject to such discussion, and that any trifling embarrassment, to those who in rapid rotation are for brief periods charged with the handling of sanitary troops, can not be permitted to stand in the way of a better solution of the problems in the minds of all concerned—there is little likelihood of serious detriment to the feelings and dignity of participants. The Director of Problems will have announced at the very beginning that the work is new, that the duties required are, in the nature of things, those to which militia medical officers must be unaccustomed, and that mistakes of greater or less degree are practically certain to be made by all. He will have emphasized the fact that an assignment to demonstrate the solution of a problem carries with it not only the direction of subordinates on the field, but his defense of the methods taken in subsequent open discussion with all interested. These discussions are also valuable because they afford excellent opportunity for the correction of misapprehension or error on the part of those taking part in the discussion. The best time to hold these discussions is probably in the evening, as a sort of "camp fire lyceum," when the conditions and actions of the day are fresh in the mind yet there has been sufficient opportunity for later reflection thereon. A full discussion of the problem in all its phases at this time brings about recognition of the best methods which could have been employed in arriving at its ideal solution—accepted as best not

Digitized by Google

through any dogmatic statement by the Director of Problems, but because they represent the matured consensus of opinion which had finally been arrived at after a full discussion of every phase and factor by all concerned.

In conclusion, the writer is convinced that the sanitary personnel has, in the past, derived much less in the way of practical benefit from maneuver camps than other branches of the military service. Too frequently it has been content to remain in camp, its time largely idle except for the treatment of such few cases of illness and injury as presented themselves. There is absolutely no reason why this should be the case. It would seem as if the time had come when the Medical Department should appreciate —and prove equal to—its opportunity, and habitually play its proper and complete part in the general field training in preparation for war.

DISCUSSION.

Major Charles Lynch, U. S. A., asked what procedure was adopted to ascertain if dressings had been put on without unnecessarily soiling the wound.

Captain Henry D. Thomason, U. S. A., bore witness to the good practical results of the system outlined by Major Munson. "The four days' course as outlined and practiced is bound to result in great good to all participants, both to commissioned and enlisted."

Major E. L. Munson, U. S. A., in closing, said in reply to Major Lynch that while the procedure adopted left something to be desired it had been assumed, if the dressing was found to be properly applied when the man was received, that due care had been taken in making it.

Digitized by Google

THE EFFORTS OF OHIO DURING THE PAST YEAR.*

By Lieutenant Colonel JOSEPH A. HALL, Chief Surgeon of Division, Ohio National Guard.

DURING the meeting of this Association at Richmond, Virginia, last year the author had the honor to present a short report on the "Efforts, accomplishments and aims of the Ohio National Guard," and at which time remark was made that a future report would be made.

Early in the present year a recommendation was made to the Adjutant General of Ohio, that a camp of instruction for the Sanitary troops be held early during the summer, so as not to interfere with the work of the officers of the Medical Corps on duty with the various line organizations.

It was only after some effort that the necessary order was issued for the mobilization of the entire Medical Department of Ohio at Coshocton, June 24th to July 1st, 1911, inclusive.

A request made to the Surgeon General, United States Army, through the Division of Militia Affairs, for the assignment as instructors at this camp of Majors F. P. Reynolds; E. L. Munson; C. R. Reynolds; Captain Henry D. Thomason, Medical Corps, and two Sergeants 1st Class, Hospital Corps, United States Army, was promptly granted. Every encouragement, and great help was given to us by the Surgeon General and his force in the office.

Major Frederick P. Reynolds was assigned the subject of "General camp sanitation and the prevention of diseases among soldiers."

The ground in this mighty subject was beautifully covered by Major Reynolds in the short time allotted him, giving us all an insight into the work which is before us, and food for much thought and study.

Major E. L. Munson: "Tactical work of the Sanitary Service in co-ordination with that of the line."

Major Charles R. Reynolds: "The internal management and administration of the Sanitary Service."

The work of Major Reynolds, to us of the Militia was beyond

*Read at the 20th Annual Meeting.

Digitized by Google

price and it is with regret that the time allotted me will not permit of at least a synopsis of his work.

Captain Henry D. Thomason, having been assigned as Inspecting Officer after his arrival at camp, was relieved from lecture work.

The Sergeants 1st Class were assigned, one to the Field Hospitals, and one to the Ambulance Companies, and by their ceaseless efforts were of great help to the enlisted men of our state.

As the programme will show the days were full; the mornings were taken up entirely by field problems, the afternoons were given over to lectures and the evenings to "Camp Fire" Lyceum.

The lectures were so arranged as to be an outline for the subsequent maneuver on the following day. The Lyceum conducted in the evening was one of the most valuable features of the work, they were conducted as "heart to heart discussions" in which all the officers were encouraged to join, questions were asked and the participants in the day's problem called upon to defend their actions against all critics; and since it was fully understood at the beginning that it was necessary to mention names to bring out certain points, the whole being really impersonal, no person's feelings were hurt. This feature, so often harmful at the larger general maneuvers was entirely eliminated here by a complete understanding at the very beginning.

That this paper may not be unnecessarily long we will not comment upon the lectures as given but pass directly to the "Tactical work of the Sanitary Service in co-ordination with that of the line."

We realized at the outset that we of Ohio were the pioneers in this work and that no trail had been blazed for our footsteps to follow.

The camp was located on the outskirts of a small city in the coal mining region, surrounded by a very hilly country, which was, however, traversed by a few good graveled roads, and many ordinary dirt roads. The terrain was such that, while the hills were high, it was excellent maneuver grounds and afforded excellent cover.

The equipment of the Field Hospitals and Ambulance Companies was that prescribed in the Manual, Medical Department, U. S. A., and in addition two motor trucks one of 4 ton and the

Digitized by Google

other of 6 ton capacity were provided as well as several pack mules.

Having been in attendance on various occasions at maneuver camps of the line we have noticed the lack of interest manifested by the enlisted men of the line. Inquiry as to the cause has always brought forth the answer that in nearly every instance the enlisted men, and frequently the junior officers had little if any knowledge of the problem under consideration; frequently being required to march miles under a broiling sun, over dusty roads, only to return to camp late in the afternoon dirty, tired, hot and hungry, never having come into contact with the enemy, and with no knowledge whatsoever of the nature of the problem in which they had played a part. It is not hard for one who has served in the ranks to understand why the men become discouraged, or why they fail to re-enlist immediately following camps of this nature. The American citizen, as found in our ranks, wishes to be considered at all times. Reasoning thus, we took the enlisted men into our confidence. The programme for the work of the week was published and a copy was placed in the hands of each officer and enlisted man on the first day of the camp. This was followed up by the publication of each of the various problems, as issued from day to day and handed to each officer and enlisted man at the beginning of the day's work, or as the umpire might direct. The problem was explained to the officers by the chief umpire, and in turn by the officers in command of companies to the men. The result was most satisfactory, and the interest manifest was ample reward for the labor necessary to accomplish this. The officers and men knowing exactly what was expected of them did their best to obtain the results desired. At times the work was exceedingly hard, marches were long and hot, the litter bearers were frequently required to make long and exceedingly difficult carries, but they did their work well and cheerfully, all being considered as part of the game of which they were playing a part. There was never a complaint, and we note men whose enlistment expired soon after this tour of duty, did re-enlist and worked to gain recruits for their organizations.

We have also listened to the sound of the field pieces, and the rattle of small arms during line maneuvers; not that the use of ammunition helped materially in the elucidation of the prob-

Digitized by Google

lem, but it "adds a tinge of realism and helps to keep up the interest of the enlisted men." But what of the enlisted men of the Hospital Corps herein engaged? Ammunition, of course, but of an entirely different kind. The kind not of destruction but of aid. The new pattern Diagnosis Tag was provided and the latest pattern 1st Aid package were used on the field, reinforced by the official dressings as issued with regiments, Ambulance companies and Field Hospitals.

The Diagnosis Tags were made out before each maneuver for a considerable range of injuries, according to the following regional analysis which was found to exist in some 7,000 Japanese wounded:

Wounds of the head and neck	15%
Wounds of the trunk	32%
Wounds of the upper extremities	25%
Wounds of the lower extremities	28%
	100%

Of the injured 10% were assumed to be dead.

Of the total wounded 10% were of such nature as to be naturally non-transportable.

About 30% of the total cases were of such gravity as to require litter transportation.

Of the wounds of the extremities about 40% were fractures.

In no case was a dressing left largely to the imagination, as in maneuvers is so frequently true, but in each case the proper, or what was thought to be the proper dressing, applied. A board of officers, consisting of one from the Regular Corps and two from the Ohio Corps, was appointed each day to pass upon and make record of the dressings and at Lyceum in the evening this report was read, and as each man who dressed a case was required to sign his name to the Diagnosis Tag it was quite evident that where a mistake was made, correction reached the proper person.

But four problems were given and were as follows:

1st. "Sanitary Service with the Independent Battalion."

2nd. "Sanitary Service with the Independent Regiment."

3rd. "Sanitary Service with the Independent Brigade."

Digitized by Google

4th. "Sanitary Service with the Independent Brigade," in conjunction with one Squadron Ohio Cavalry, one Battalion Ohio Signal Corps, one Band, 9th Ohio Infantry.

In the first two problems none but Hospital Corps men were used as "lay" figures; in problem number three Hospital Corps men and Band, 9th Ohio Infantry, were used; and in problem number four, One Squadron, 1st Ohio Cavalry, One Battalion, Ohio Signal Corps, Band, 9th Ohio Infantry, and Hospital Corps Men.

HEADQUARTERS OF DIVISION OHIO NATIONAL GUARD,
Office of the Chief Surgeon,
CINCINNATI, O., *June* 10, 1911.

ORDER
No. 3.

The following programme will be carried out during the encampment of the Medical Department, Ohio National Guard, at Coshocton, Ohio, June 24th to July 1st, 1911; under the instruction of Majors F. P. Reynolds, E. L. Munson, C. R. Reynolds, Captain Henry D. Thomason, Medical Corps, United States Army; and Sergeants First Class Francis E. White and Elmo D. Mathews, Hospital Corps, U. S. Army.

First Day.

Saturday, June 24. Arrival of command.
Practical instruction in detraining, transportation, and camp establishment under organization commanders.

Second Day.

Sunday, June 25, 8 *A. M.* Inspection of entire command, camp, equipment and transportation by Lieut. Colonel J. A. Hall, Chief Surgeon, and Captain H. D. Thomason, and visiting officers.

9 *A. M.* Conference by Lieut. Colonel J. A. Hall and Major E. L. Munson, with all officers and enlisted men regarding the course of instruction contemplated for the ensuing week, its general purpose and the solution of sanitary problems.

Third Day.

Monday, June 26, *A. M.* Participation by entire command in general parade to be given in the City of Coshocton.
Practical instruction in marching, drill and management of transportation.

Digitized by Google

1:30 *P. M.* Joint conference (Major F. P. Reynolds) officers and enlisted men, on the sanitation of camps and prevention of diseases among soldiers.

2:30 *P. M.* (*a*) Officers conference (Major E. L. Munson) on the general functions of the sanitary service and its relation to the combatant forces; general outline of sanitary organization for war; zones of activity, the service of information and orders; battle casualties, weapons, cover and map reading.

Sanitary service with independent battalion and squadron.

(*b*) Enlisted men. Litter drill, squad, under non-commissioned officers.

3:45 *P. M.* (*a*) Officers conference (Major C. R. Reynolds) on the papers and records required in field service; their purpose and preparation.

(*b*) Enlisted men. Drill in first aid, splinting and bandaging under non-commissioned officers.

Evening. Social entertainment in Coshocton.

Fourth Day.

Tuesday, June 27, 7 A. M. Participation by entire command in a field problem, sanitary service with the independent battalion.

1:30 *P. M.* Joint conference (Major F. P. Reynolds), officers and enlisted men, on the sanitation of camps and the prevention of diseases among soldiers.

2:30 *P. M.* (*a*) Officers conference (Major E. L. Munson) on the sanitary detachment with independent regiments; including its organization, tactical disposition on the march and in action, zone of activity, transportation, stations of relief, supplies, accessory sources of assistance, etc.

(*b*) Enlisted men. Litter drill, platoon, under non-commissioned officers.

3:45 *P. M.* (*a*) Officers conference (Major C. R. Reynolds) internal administration and training of sanitary detachments with the battalion and regiment, equipment and supply; duties of sanitary personnel in camp; the uses and limitations of the regimental infirmary.

(*b*) Enlisted men. Drill in ambulance loading, use of travois; construction of improvised travois, hammock slings; carriage of wounded without slings, etc.

4:45 *P. M.* Demonstration of foregoing apparatus to medical officers.

Evening. 7:30 *P. M.* Camp Fire Lyceum for all officers and non-commissioned officers.

(1) Discussion of the field problem of the day (Major E. L. Munson) by all officers, opened by_____

(2) Paper by Captain H. D. Thomason, on the relation of the

Digitized by Google

Medical Department to the organization, management, duties, training, etc. of a newly raised infantry regiment in camp and campaign.

Discussion opened by_____, and_____

Fifth Day.

Wednesday, June 28, 7 *A. M.* Participation by entire command in field problem, sanitary service with the independent regiment.

1:30 *P. M.* Joint conference (Major F. P. Reynolds) officers and enlisted men, on the sanitation of camps and the prevention of disease among soldiers.

2:30 *P. M.* (*a*) Officers conference (Major E. L. Munson) on stations for Slightly Wounded, their organization and equipment; on Ambulance Companies, including organization, tactical disposition on the march and in action, zone of activity, Dressing Stations, equipment and supplies, transportation, accessory sources of assistance, etc.

(*b*) Enlisted men. Drill in pitching and striking hospital and shelter tents, under non-commissioned officers.

3:45 *P. M.* (*a*) Officers conference (Major C. R. Reynolds) on the internal administration of Ambulance Companies; equipment and supply; duties and training of personnel in camp; care of animals and management of transportation, etc.

(*b*) Enlisted men. Drill in establishing and breaking up Aid and Dressing Stations.

Evening, 7:30 *P. M.* Camp Fire Lyceum for all officers and non-commissioned officers.

(1) Discussion of the field problem of the day (Major F. P. Reynolds) by all officers, opened by_____

Sixth Day.

Thursday, June 29, 7 *A. M.* Participation by entire command in field problem, sanitary service with the independent brigade.

1:30 *P. M.* Joint conference (Major F. P. Reynolds) officers and enlisted men, on sanitation of camps and the prevention of disease among soldiers.

2:30 *P. M.* (*a*) Officers conference (Major E. L. Munson) on Field Hospitals, including organization, tactical disposition on the march and in action, equipment and supplies, transportation and evacuation.

Reserve Sanitary Supplies, their tactical disposition and method of issue.

(*b*) Enlisted men. Drill in unloading, unpacking and estab-

Digitized by Google

lishing Field Hospitals, under direction of commanders of those organizations.

3:45 *P. M.* (*a*) Officers conference (Major C. R. Reynolds) on the internal administration of Field Hospitals; equipment and supply; duties and training of personnel in camp; the uses and liminations of Field Hospitals for care of the disabled. The internal administration of the Reserve Sanitary Supplies.

(*b*) Enlisted men. Drill in striking, packing and loading Field Hospitals, under direction of commanders of those organizations.

Evening, 7:30 *P. M.* Camp Fire Lyceum for all officers and noncommissioned officers.

(1) Discussion of the field problem of the day (Major C. R. Reynolds) opened by_____

(2) Paper by Major E. L. Munson on the influence of military epidemics on the geographical expansion, political history and military policy of the United States. Discussion opened by Major F. P. Reynolds and_____

Seventh Day.

Friday, June 30, 7 *A. M.* Participation by entire command, in connection with the cavalry and signal troops, in field problem, sanitary service with the independent brigade.

1:30 *P. M.* Joint conference (Major F. P. Reynolds) officers and enlisted men, on the sanitation of camps and the prevention of disease among soldiers.

2:30 *P. M.* (*a*) Officers conference (Major E. L. Munson) on the sanitary service of evacuation and sanitary formations of the line of communications.

(*b*) Enlisted men. Drill in unloading, unpacking and establishing Field Hospitals.

3:45 *P. M.* (*a*) Officers conference (Major F. P. Reynolds) on the sanitary service and sanitary formations of the base.

(*b*) Enlisted men. Drill in repacking instruments, appliances, utensils and equipment.

Evening, 7:30 *P. M.* Camp Fire Lyceum for all officers and noncommissioned officers.

(1) Discussion of the field problem of the day (Captain H. D. Thomason) opened by_____

(2) Paper by Major E. L. Munson, on Military Absenteeism in war, and the relation of the Medical Department thereto. Discussion opened by Lieut. Colonel J. A. Hall and_____

Eighth Day.

Saturday, July 1, 7 *A. M.* (*a*) Participation by all officers in a Tactical Walk.

Digitized by Google

(*b*) For enlisted men, such exercises as commanders of the sanitary organizations may prescribe.

P. M. No further exercises.

JOSEPH A. HALL,
Lt. Colonel, Medical Corps, O. N. G.

Official.
FREDERICK C. WEAVER,
Major Medical Corps, O. N. G.
Ass't to the Chief Surgeon.

SANITARY PROBLEM NO. 1 (June 27th, 1911).

"Sanitary service with the independent battalion."

The time is 8 A. M.

General Situation. A foraging convoy, consisting of about 50 wagons, guarded by 2 companies of hostile infantry, is being pursued southeast of Coshocton by the 1st Battalion, 1st Ohio Inf'ty along the Cambridge Road. The sanitary quota of the battalion accompanies it.

The remainder of the 1st Ohio Inf'ty is expected to reach Coshocton from the north about 11 A. M.

Special Situation. On being hard pressed, the hostile infantry takes a position near the wheat stack on the ridge northwest of the Garcia House and will make a determined resistance here to facilitate escape of the wagon train.

The advance guard of the 1st Battalion, 1st Ohio Inf'ty, on passing through the road cut a couple of hundred yards northwest of the Steward House, received a well directed fire from a distance of about 1,000 yards by which 5 men are wounded.

Major A., commanding the battalion, at once hurries company A to the shelter of the ridge and orchard southeast of the Steward House with orders to open fire on the enemy and protect the advance.

Companies B and C are ordered to make the main attack, deploying and passing over the ridge northwest of the Steward House to move against the enemy's left flank.

Company D, in reserve, is ordered to move to the swale east of the Steward House and lie down.

Major A remains with company D after directing Captain Girardot, M. C., O. N. G., to take full charge of the sanitary situation.

After an action lasting about 1 hour in which the 1st Battalion, 1st Ohio Inf'ty loses altogether about 50 men, of whom 10 are killed, the hostile infantry is driven out of its position, leaving behind 8 dead and 10 severely wounded.

Required. (1) The actual management of the wounded of the 1st Battalion, 1st Ohio Inf'ty, by Captain Girardot and the sanitary detachment of his battalion.

Digitized by Google

(2) A verbal statement by Captain Axline of the manner in which he, if surgeon of the 1st Battalion, 1st Ohio Inf'ty, would handle the wounded abandoned by the enemy.

The problem was presented to the commanding officer of the camp late during the evening of June 26th. An order was immediately issued assigning Captain A. J. Girardot, M. C., O. N. G., with a detail of one Sergeant and four privates, Hospital Corps, and one orderly to act as the attending Sanitary detail with the Independent battalion. The movement began promptly at 7 a. m., June 27th in the following order: "Combatant troops" consisting of the "lay figures" under command of Major Hendley, with two junior medical officers as assistants, to see that the patients were disposed at the proper time and in their proper places. All patients were tagged with a Diagnosis tag on which was plainly written the nature of their injury. Captain Girardot with the Sanitary detail marched immediately in the rear of these troops.

All officers of the Medical Corps and all Hospital Corps men who were not engaged in the problem of the day followed as spectators.

When the advance reached the cut in the road, mentioned in the problem, one pistol shot was fired by the umpire which indicated that the engagement had begun. Five men of the "combatant troops" fell out. The battalion immediately deployed, and during this time nothing was done to aid the injured, but immediately afterward Captain Girardot sent two men to the front to care for the wounded the result of the first fire. At this moment Captain Girardot was told by the Commanding Officer of the battalion to take full charge of the wounded, and was also informed that Co. "D" would be held in reserve in a swale just east of the Stewart House. Captain Girardot accompanied Co. "D" and established his aid station in the yard of the Stewart House, where there were trees and well water. The aid station was protected from the range of fire by a low ridge and was just off the main road.

Captain Girardot kept his orderly with him, but sent the Sergeant and one man to help on the line and to notify the others where the aid station was located. The remaining 45 wounded were distributed over the field covering an area of about a battalion front over fields and behind such natural protection as sol-

Digitized by Google

diers would naturally seek. Five of the wounded were assumed to be dead. The 45 remaining wounded were dressed by the Hospital Corps detail using only such dressings as are carried by them. The injured, those whom from the nature of their injuries were able to walk were directed to the aid station, and those requiring transportation were littered into the aid station by the detail. At the aid station the officers detailed as inspectors, first saw the patients as they arrived, passed upon the dressings and made note thereof, after Captain Girardot had made such changes in dressings as he deemed necessary and noted same on Diagnosis tag, the tags were removed by the inspecting officers and retained by them. In this action the time of dressing the wounded and policing the field was 1 hour and 17 minutes.

This concluded the problem, and the entire command returned to camp.

SANITARY PROBLEM NO. 2 (June 28, 1911).

"Sanitary Service with the Independent Regiment."

General Situation. Colonel B, commanding the 2nd Ohio Inf'ty, which has been detached to guard supplies in Coshocton, was informed by higher authority about 6:00 a. m., June 28, 1911, that a hostile brigade, with some cavalry, bivouacked last night about 10 miles north of that town and is moving against him.

Colonel B is ordered to retreat without delay to Plainfield, about 12 miles southeast of Coshocton, taking such supplies as it may be possible to remove.

Part 1.

The time is 8:00 A. M.

Special Situation. The 2nd Ohio Inf'ty, with a small but valuable convoy of 12 wagons, is moving along the Cambridge Road in rear guard formation. The 3rd Battalion forms the rear guard. The full sanitary quota of personnel and transportation is with the regiment.

Required. A verbal statement by Major T. V. Dupuy, M. C., O. N. G., as to a suitable disposition of the sanitary resources in the regimental column as it leaves Coshocton.

Part 2.

A continuation of Part 1.

Colonel B, riding at the rear of the main body, has just been in-

Digitized by Google

formed by a citizen, that 600 or 800 hostile Cavalry were seen about one-half (½) hour ago, about a mile east of Coshocton, riding rapidly southward. At this moment the advance party of the 2nd Ohio Inf'ty, which followed by the wagon train, had just reached the bend in the Cambridge Road southwest of the 950-foot hill, is driven back by a sudden heavy fire from the ridge (just off the map) about 300 yards northeast of the Lamn House.

Col. B realizes that he must fight his way through the delaying cavalry or lose his train.

He at once moves Companies A and B south of the road with orders to advance under shelter of the promontory running west of the Lamn House and open fire on the enemy from its vicinity.

He sends Companies C and D with the entire 2nd Battalion, to move against the enemy's position by way of the unimproved road north of S. Wood's house, the abandoned mine and timbered slope to the eastward.

The wagon train, which has not come under fire, remains halted.

The support of the rear guard on closing up, is halted 200 yards north of S. Wood's house.

He directs the Regimental Surgeon (Major Wm. H. Love, M. C., O. N. G., to handle the sanitary situation.

After about an hour's action, during which the 2nd Ohio Inf'ty suffers 100 casualties, the hostile cavalry is driven out. The enemy seems to have left about 15 dead and 20 wounded.

Required. The direction of his subordinates in the management of the casualties in his regiment, during the action by Major Love, Surgeon of the 2nd Ohio Inf'ty.

Part 3.

A continuation of Parts 1 and 2.

Special Situation. About the time that the Cavalry is driven out Colonel B is informed that a strong force of hostile Infantry is coming up rapidly and is now less than 2 (two) miles north of Coshocton.

He at once sends word to Major Love, M. C., O. N. G., the Regimental Surgeon, that the retreat will be resumed without delay and the rear guard will start to retire within half an hour.

Required. The action of Major Love, M. C., O. N. G. In view of the necessity for promptly resuming the retreat, with respect to the disposition and management of the wounded.

Upon receipt of this problem, late in the evening of June 27th, orders were immediately issued, assigning Major Wm. P. Love, Captains H. L. Davis, W. H. Knauss, Charles Wehr, M. C., O. N. G., and a complete regimental complement of Hospital

Digitized by Google

Corps men, two ambulance complete, one escort wagon, one pack mule with pack, and complete regimental medical equipment. Promptly at 6.30 on the morning of June 28th the "lay figures" numbering 100 Hospital Corps men with Diagnosis tags attached commanded by Major Ware, M. C., O. N. G., and three assistants, moving in column left the camp site. The sanitary detail with the equipment followed immediately in rear of the column. After marching about a mile the signal shot was heard. Major Love directed Captain Davis, with one sergeant and six privates, Hospital Corps, to accompany Co's "C" and "D" with the entire 2nd Battalion along the unimproved road north of the S. Wood's house. Captain Wehr, with three privates, Hospital Corps, was directed to accompany Co's "A" and "B" to the south of the main road. Major Love notifying both surgeons that he with Capt. Knauss and the remainder of the sanitary personnel would remain at the forks of the road near the S. Wood's house where a regimental aid station would be established. Major Love received messages from time to time from Captain Davis and Captain Wehr, carried by wounded soldiers who came to the aid station advising him the number of injured they had seen, and the disposition being made to them. Upon a request from Captain Davis, received about 30 minutes after the engagement had begun, Major Love sent the pack mule with pack to Captain Davis. The wounded to the number of 100 were distributed over a space about three-quarters of a mile in width, over a slightly wooded and broken hillside in about 40 minutes' time. To the right of the road there were 25 casualties and to the left 75. The work of caring for the wounded went forward as rapidly as possible; on the right flank the sanitary party was very well protected from the direct fire of the enemy and could work rapidly and with very little danger to themselves, on the left flank, however, where the climb up the hill was more open and almost constantly under fire the work progressed more slowly. Captain Davis sends request for more help and three additional Hospital Corps men are sent to him. One hour after the engagement is begun Major Love receives a message from the commanding officer that the retreat will be taken up at once. Major Love immediately sends an orderly to so inform Captain Davis and Captain Wehr of the contents of this order, and directing them to bring in all injured pos-

Digitized by Google

sible and report to him at the aid station at once. Captain Davis has established a small collecting station near the abandoned mine where there was shelter and a very good spring. Most of the injured who had not found their way back to the regimental aid station had reached this collecting station either by their own efforts or with assistance. Upon receipt of Major Love's order, Captain Davis directed that all wounded possible be removed back to the aid station. Hurriedly going over the field again he was able to count 9 dead and 7 so desperately wounded that they were naturally non-transportable, returning to his collecting station he placed two men on his horse and sent them forward to the aid station, following himself on foot.

Immediately upon arrival Captain Davis reported to Major Love his return and informed him of the number of dead and injured left on the field and requested instruction. Major Love directed that the wounded left on the field be abandoned. Captain Wehr reported at this time that all wounded on the right flank had been moved to the aid station. The ambulances, wagons and other vehicles which had been pressed into the service were loaded first with the wounded then with the equipment and made ready to move.

Major Love sent a mounted orderly to the commanding officer, markd "Rapid," advising him that the sanitary personnel was prepared to move. The problem ended here and the entire command returned to camp.

SANITARY PROBLEM NO. 3 (June 29, 1911).

"Sanitary Service with the Independent Brigade."

General Situation. A hostile force, believed to consist of one regiment of infantry, one battery of field artillery and several troops of cavalry, is holding a position on the ridge south of the Plainfield Road and extending across the road running south of the Lamn House.

Brigadier General C, commanding a reinforced brigade of Ohio troops now in Coshocton, consisting of the 1st, 2nd and 3rd Inf'ty, Batteries A and B, 1st Field Artillery, the 1st Squadron 1st Cavalry, and the 2nd Ambulance Co., has been ordered to take the hostile position.

Digitized by Google

Part 1.

The time is 6.30 A. M.

Special Situation. The Ohio troops are moving out of Coshocton, along the Cambridge Road, to the attack.

General C has issued field orders making the following disposition of his troops:

Both Batteries of Artillery are to take position on the 1,050 foot hill south of the Hudson House, with orders to protect the advance with their fire.

The Cavalry, less troop A, is to move southeast of the Lamn House to threaten the hostile right; Troop A is sent to the ridge southwest of the artillery position to serve as a flank guard and artillery support.

The 1st Inf'ty is to deploy and take position on the upper part of the Lamn House Ridge and open fire on the enemy to protect the advance.

The 2nd Inf'ty is to deploy and advance over that part of the Lamn House Ridge west of the unimproved road; thence southeasterly in the general direction of the junction of the Cambridge-Plainfield Roads.

The 3rd Inf'ty is to be held in reserve off the road northeast of the Lamn House.

The Brigade Headquarters is near the position of the 3rd Inf'ty.

Required. A statement by the Chief Surgeon of the Brigade, Major H. B. Bertolette, M. C., O. N. G., as to the instructions which the above mentioned field orders of Brigadier General C should have included with respect to the 2nd Ambulance Company.

Part 2.

The time is 7.30 A. M .

A continuation of Part 1.

Special Situation. In compliance with the foregoing orders, the 2nd Inf'ty has deployed and is just advancing between the right of the 1st Inf'ty and the Artillery.

Required. A statement by Major Chas. H. Gamble, M. C., O. N. G., Surgeon of the 2nd Ohio Inf'ty as to the disposition which he has made of his Sanitary personnel in preparation for the attack.

Part 3.

A continuation of Parts 1 and 2.

Special Situation. The 2nd Inf'ty has moved down the slope to a distance of about 1,000 yards from the enemy's

Digitized by Google

main position, when the hostile artillery holding a previously undisclosed position behind the 1,000 foot hill top on the extreme west of the ridge occupied by the enemy, enfiladed the lines of the 2nd Inf'ty with shrapnel at a range of about a mile. The hostile infantry at the same time poured in a heavy fire. Under the combined shrapnel and rifle fire, the 2nd Inf'ty broke and retired in considerable disorder, having suffered about 150 casualties in a few minutes.

However, on the 2nd Inf'ty passing over the Lamn Ridge, the fire against it stopped entirely and the troops were halted and reformed.

Required. A statement by Major Chas. D. Gamble, Surgeon of the 2nd Ohio Inf'ty, as to his action when his regiment began to be forced back, with any action which he will carry out at this time.

Part 4.

A continuation of Parts 1, 2 and 3.

Special Situation. About the time the 2nd Inf'ty retired over the Lamn Ridge, our stronger Artillery force found and put the Hostile Battery out of action.

General C at once ordered the 3rd Inf'ty to advance over the ground across which the 2nd Inf'ty had moved.

Under cover of fire of the Artillery and 1st Inf'ty, the 3rd Inf'ty advanced within 400 yards of the hostile position, when the enemy abandoned the latter, retiring in good order.

In its advance, the 3rd Inf'ty suffered 100 casualties.

Reports to General C state that the 1st Inf'ty lost 45 men, the Artillery 5, the Cavalry none.

Required. (1) The orders of the Chief Surgeon, Major H. B. Bertolette, for the establishment of a dressing station.

(2) The information and orders, which should be given by the Ohio Surgeon, Major H. D. Bertolette, to the Surgeons of the 1st, 2nd and 3rd Inf'ty.

(3) (*a*) Demonstration by Lieut. P. R. McLaughlin of the establishment and operation of a Dressing Station.

(*b*) Actual policing of the battle field by Captain Pence with the Ambulance Co. No. 2 reinforced by the Sanitary detachment with the 2nd Inf'ty placed under his direction for the purpose.

(NOTE—Both the Sanitary personnel and wounded of the Artillery and 1st and 3d Inf'ty other than 50 of the latter which fell in the same area as the 2nd Inf'ty wounded, will be disregarded in the execution of this requirement.)

The orders for the problem indicated the following disposition of the Sanitary troops:

Digitized by Google

Major H. B. Bertolette, Chief Surgeon of Brigade.
Major T. V. Dupuy, 3rd Ohio Infantry.
Major H. J. Ware, 1st Ohio Infantry.
Major C. D. Gamble, 2nd Ohio Infantry.
Captain Pence, 2nd Ohio Infantry.
Lieut. Harrison, 2nd Ohio Infantry.
Lieut. Church, 2nd Ohio Infantry.
Lieut. P. R. McLaughlin, commanding the 2nd Ambulance Company with a complete commissioned and enlisted personnel and equipment.

The troops moved out of camp in the same order as on the two previous days, in the order in which they were to go into action, followed by the 2nd Ambulance Company, which just before leaving camp had been paraded showing its component parts:

1st Litter Bearer section.
2nd Dressing Station section.
3rd Transportation section.

In this problem in addition to its ambulances the Ambulance Company had two motor trucks. As each truck was mounted with side racks it was found convenient to place loaded litters from side to side across the body of the truck. We found that a motor truck the size we were using could conveniently carry 20 patients on the regulation litter in comfort, or 45 patients sitting down on boards or folded litters resting on the side racks across the body of the car. The trucks so loaded moved across the country at a rate of from 12 to 15 miles per hour. In this manner transportation was carried out with great rapidity and with greater ease and comfort than have been accomplished with the regulation horse ambulance.

One motor truck was used to transport the equipment of the Ambulance Company to the place of action. Four orderlies were mounted on motor cycles, which we, on several occasions while on active duty have found not only rapid and convenient, but when mounted, as these were with a secondary or rear seat, of the greatest convenience in transporting certain classes of wounded men to surgical assistance.

A pack mule with pack was assigned to each regiment and one to the Ambulance Company.

Digitized by Google

Part I.

Major H. B. Bertolette, Chief Surgeon, stated that Brig. General C, in the field orders, should have included a paragraph for the movement of the Ambulance company, directing it to follow in the rear of the main column behind the combat trains.

Part II.

Major Gamble, M. C., O. N. G., stated that as the 2nd Ohio Infantry went into action that he had designated a depression in the hill side away from the enemy and to the east from the unimproved road running north and south from the Lamn House as the location for the regimental aid station. He has assigned a junior surgeon and five Hospital Corps men to follow closely in rear of their respective battalions as they advance. Major Gamble with the rest of the Sanitary personnel and equipment will be at the regimental aid station.

Part III.

Major Gamble states as his regiment is forced to retire, he starts all wounded able to walk to the rear, directing them to seek such cover as they can find. He was compelled to abandon all wounded still on the field of action who had not reached the aid station and those unable to walk. Major Gamble with his detachment and such equipment as they can carry and can be loaded hurriedly upon the pack mule retire at the time the 2nd Infantry is forced to retreat.

Part IV.

Major Bertolette, who is with the brigade commander near the Lamn House, upon being informed by the Adjutant that the casualties are in the neighborhood of 200, sends a mounted orderly to the commanding officer, 2nd Ambulance company, directing him to put in a Dressing Station near the junction of the Cambridge and Pleasant Valley roads.

Upon receipt of this order Lieut. McLaughlin directs one of his juniors to locate the Dressing Station in the farm yard of S. Woods, which is but a few yards distant from the junction of the

Digitized by Google

roads named in the order. This for the reason that there is plenty of good water, trees and out buildings which are quite new and can be used to house the wounded. The Dressing Station was established as prescribed, fires were built, water boiled, coffee and soup were made. An operating fly was erected and an operating table built by driving forked sticks into the ground and placing an open litter across them, this being covered with a rubber blanket. Instruments were sterilized, and plenty of dressings made ready. A recovery fly was erected and under it were spread ponchos with blankets on top. An order was received from the Chief Surgeon directing that the litter bearer section be sent forward to report to Captain Pence on the ridge above the juncion of the Cambridge-Plainfield roads. The section went forward at once under command of an officer, and reported to Captain Pence for duty in conjunction with the sanitary force of the 2nd Infantry in policing the field.

The wounded lay nearly ¾ of a mile from the end where wheeled transportation could reach, along the crest and hill side of 1,000 foot hill, across a small stream up a very steep hill and through quite a dense piece of woods to a point at which wheeled transportation could be reached. The sun was very hot, it seemed a moment to try men's souls, but the work of first aid and collecting went rapidly on. The litter bearers went to their work; they constructed two travois with saplins cut with their Hospital Corps knives and fastened together with the tie rope taken from a pack mule. In a little less than an hour the last of the 86 patients requiring transportation was placed in an ambulance and started toward the Dressing station.

The patients on being received at the Dressing Station were first recorded and examined, those requiring further attention were taken to the operating tent as rapidly as possible. Each patient was offered a cup of coffee or hot soup. The problem ended here.

SANITARY PROBLEM NO. 4 (June 30, 1911).

"Sanitary Service with the Independent Brigade."

General Situation. A hostile force, believed to be composed of three or four infantry regiments, a battalion of artillery and a squadron of cavalry, was reported as having started about noon

Digitized by Google

yesterday from Plainfield, about 12 miles southeast, to advance on Coshocton.

General D, commanding the Ohio forces at Coshocton, has at his disposal the 1st, 2nd and 3rd Inf'ty, 1st Squadron, 1st Cavalry, 2nd Battalion, 2nd Artillery, 1st Ambulance Company and 1st Field Hospital, 1st Battalion Ohio Signal Corps.

General D is ordered to defend Coshocton against the hostile advance.

Part 1.

General Situation. In conformance with his orders, General D moved out his troops from Coshocton two hours before sunset last night and entrenched a position in the vicinity of the School House (just off the southeast corner of the map).

The artillery is located on the high hill southeast of the Plainfield-Cambridge Road junction.

One battalion of infantry is posted as flank guard on the ridge several hundred yards southeast of the artillery position.

Three battalions of infantry are posted on the ridge south and southwest of the Windmill House. The regimental reserves are in the immediate rear of their respective lines.

A reserve regiment is in the wooded swale behind the main infantry position.

Two troops of cavalry are posted on each flank.

The Field Hospital is directed to remain in its present position in Coshocton. It will be connected with the Dressing Station by wire.

The Plainfield-Otsego Road is designated as the route for evacuation of wounded. (Note: The situation is such that all sanitary preparations can be made in advance.)

Required. (1) A statement by the Chief Surgeon, Major T. V. Dupuy, M. C., O. N. G., as to a suitable location of the Dressing Station; also the information and orders which he will give the regimental surgeons.

(2) A statement by Major H. H. Snively, M. C., O. N. G., as to a suitable location for the Aid Station of the 2nd Inf'ty (second organization west of the road).

(3) Actual establishment of these two stations.

Part 2.

A continuation of Part 1.

The following organizations, Troops A, B, and C, Ohio Cavalry, Companies A and B, Signal Corps, Band, 9th Infantry, detachment Hospital Corps, will be tagged and distributed as wounded, along the lines of the infantry and artillery positions.

Digitized by Google

With the beginning of the firing, the sanitary service of the battle field will commence operations.

Required. Demonstration by the sanitary service of first aid on the firing line, at the regimental Aid Station and the Dressing Station; the collection and removal of wounded from the battlefield and their actual evacuation to the Field Hospital in Coshocton. (Note: Wounded belonging to the mounted service, if marked "Able to Walk," will ride their horses to camp, but must report at the Field Hospital and turn in their diagnosis tags for preservation and record before proceeding to any other duty.)

Wounded of all services marked as "Requiring transportation" will be removed by wheeled vehicles.

(Note: The oat field west of the artillery position, is declared an impassable obstacle; wounded will be evacuated through the woods south of it.)

The following disposition of sanitary troops was ordered for the final problem:

Major T. V. Dupuy, Chief Surgeon.
Major H. H. Snively, Director of F. H. and A. C.
Major F. W. Hendley, Commanding 1st Field Hospital.
Major J. H. Wright, on duty with regiment.
Captain C. C. Axline, on duty with regiment.
Captain Mitchell, on duty with regiment.
Captain McDowell, on duty with regiment.
Lieut. Dale Wilson, commanding 1st Ambulance company.
The 1st Ambulance company with full complement of officers and enlisted men, and full file equipment.
The 1st Field Hospital, complete, personnel and equipment.
1st Squadron, 1st Ohio Cavalry, Major Scofield, Commanding.
One battalion, Ohio Signal Corps, Major Jaquith, Commanding.
9th Ohio Infantry band, acting as an infantry company.

The patients for the day were found among the troops of the cavalry, signal, 9th Infantry and detachment of Hospital Corps men.

These were properly tagged and the disposition of the troops was made as specified in the problem. As the problem indicated the disposition of the troops was made before the action began. Two troops of cavalry were on the left flank and one on the right.

One and one-half companies of signal corps, the 9th Infantry and 50 Hospital Corps men, each organization simulating a battalion of infantry were located along the ridge south and south-

Digitized by Google

west of the Windmill house. This entire number of men were tagged and acted as "lay figures" in the sanitary problem. The casualties in the cavalry on the left flank, however, were but 35, and on the right but 20.

Fifteen rounds of blank ammunition per man was issued to troops carrying either rifle or revolver in this problem.

The writer unfortunately is not in possession of Major Dupuy's information or orders to the regimental surgeons.

Major Snively directed that the regimental Aid Station for the 2nd Infantry should be located in a swale of ground about 250 yards in rear and a little to the left of the center of the 2nd Infantry; an ideal location as it was easy of access and very well protected from the direct fire of the enemy.

A signal from the chief umpire, Major Munson, and the firing along the entire front, a distance of a little more than a mile, became general. Fire control was regulated by the officers with the troops and was so governed as to prolong the engagement over a period of nearly two hours.

Immediately upon the beginning of firing the sanitary service of the battle field commenced operations.

The regimental Aid Station, under Major Wright, was established at the point indicated, the juniors on duty with the regiment with their quota of enlisted men were on the firing line of the respective battalions, first aid was promptly applied and the wounded moved as rapidly as possible to the Aid station.

One of the most interesting things of this whole week of interest occurred when the two troops of cavalry on the left were informed that their entire Sanitary personnel had been killed. They were stunned for a moment, then under the directions of their non-commissioned officers they applied their own 1st aid packages. The result of this experiment was most satisfactory, of the 35 wounded and so dressed but two had misplaced dressings, and this no doubt caused by a misunderstanding of the nature of the wounds as written on the Diagnosis tags.

Major Dupuy directed the Ambulance company to establish a Dressing Station in the edge of a heavy wood near a small stream well under the hill and to the right of the position occupied by the Artillery. The location was not so desirable as on the previous day as it was not so easily accessible to wheeled transportation neither did it have the out houses.

Digitized by Google

Lieut. Wilson with his entire command, full field equipment, including wagons, ambulances and two auto trucks, and followed by a detachment of Signal troops with a reel cart moved promptly from the school house into position. The Dressing Station was rapidly established. An operating fly was erected in which an operating table was erected, a receiving or recovery fly where blankets were spread. A fire was immediately started, water was boiled, coffee, soup and gruel made, instruments were sterilized, dressings were made ready and upon the arrival of the first patient everything was in readiness. The Dressing Station was placed in communication with the Field Hospital by telephone by the Signal Corps almost before they were established.

The Litter Bearer section was now started out and was followed almost at once by the transportation section, less the two auto trucks. The arrival of patients soon became one continuous stream, some walking alone, others being aided by other wounded, still others on litters and in ambulances.

Records were made, dressings examined and readjusted, nothing being assumed as satisfactory until the proper dressing for the indicated injury had been applied. The auto trucks were loaded rapidly with the more seriously injured and started to the Field Hospital, which was established, fully equipped and in operation under the command of Major Hendley with a full complement of officers and enlisted men at the camp site about 3½ miles in the rear. The auto trucks made the trips rapidly and with comfort to the Field Hospital and return. As the problem progressed the number of wounded at the Dressing Station grew rapidly as did the gallery of officers and enlisted men of all arms of the service. It was truly a beautiful sight. The rapidity of action of the Medical officers and enlisted men; there was haste but no confusion; neither was there loud or unnecessary talking. It was work of the most earnest kind and every officer and man who watched became deeply interested. "Bunkie" inquired for bunkie;" one organization inquired for the welfare of another. Truly it was a sight to make the heart glad, to feel that we had made such progress that should the day come when we should be needed, that Ohio stood ready to do her full duty.

As the last patient was removed from the operating table to the waiting ambulance there was a dead silence for a moment, and

Digitized by Google

then a little ripple of applause which in a flash had expanded into a mighty cheer the equal of which is seldom heard in the open air, for the officers and men who had played the game of war so realistically and so well.

We feel confident that what Ohio has done other states can do equally as well, possibly not in the same manner, but if we have blazed the trail for others to follow we are proud.

And now that our first lesson is over we have learned much, yet the way is long and there is much to accomplish, but at the end of the path "burns the lamp of knowledge."

DISCUSSION.

General A. C. Girard, U. S. A., Ret., "On listening to Colonel Hall's paper, I was reminded of General McArthur's remarks last night about overloading and overworking the soldiers without corresponding advantage. While this does not apply to the question of the 'problems,' it does to the theoretical instructions of the Hospital Corps, when it appears that much unnecessary carrying of patients and marching was done.

"This reminds me of the system I introduced at Camp Atascadero, of which I was Chief Surgeon. I assimilated the method of firing in the line at reduced distances, the litter drill, leaving firing line, first dressing stations, field hospitals, short distances apart, so as to leave the time lost in marching, and in this manner got through the theoretical drill rapidly and this gave more time for problems."

Major William P. Love, N. G. Ohio, said that his personal experience was that the methods adopted as described by Colonel Hall were to be highly commended. "While it might perhaps be thought that the free discussion at the lyceum would result in considerable bitterness in reality this was not the case, everyone fully realized the importance of such discussion and participated in it freely without any animosity."

Captain W. P. Morrill, N. G. Md., stated that he thought all members present should congratulate Colonel Hall.

Lieut.-Colonel L. H. Reichelderfer, N. G., D. C., inquired what trucks had been used.

Major E. L. Munson, U. S. A., stated that he was present and desired to add a word of commendation He thought great credit was due to Colonel Hall's personal efforts.

Captain H. D. Thomason, U. S. A., said there was absolutely no hard feeling displayed at the lyceum. Great credit was certainly due to Colonel Hall. Ohio stands at the head of the Organized Militia so far as the medical department is concerned. This statement the speaker afterwards qualified by saying that he did intend to imply that this was true so far as officers, men and material were concerned, but that the Medical Depart-

Digitized by Google

ment of Ohio had actually attained more nearly the prescribed standard than had any other state.

Lieut.-Colonel Hall, N. G. Ohio, said in conclusion that he did not spare his men at all, but that they thoroughly enjoyed the exercises and he thought an important factor in this was that everything was made as real as possible. A condition which would not exist with reduced distances. All money came from the United States except pay, which came from the State. Of the trucks used, one belonged to the State, the other was hired under 1661. He wished to add that discussion had been very free and that it was certain if mistakes were made similar mistakes would not be made again. One medical officer had failed to use the band, this would never occur again in Ohio.

Digitized by Google

THE ADAPTATION OF THE MEDICAL SERVICE OF THE NATIONAL GUARD TO THAT OF THE ARMY.*

By Major J. F. EDWARDS, Medical Department, N. G. Pa.

THE few years that have elapsed since the passage of the Dick bill have witnessed many important changes in the organized militia. The effect of the bill has been to bring the army into closer touch with the state troops, resulting in a quickening of interest and an increased efficiency, may I say, of both organizations, but certainly of the latter. The organized militia is expected to conform as nearly as possible to the organization and standard obtaining in the army. This standard is held before us as an ever advancing goal. It is, however, reasonable to assume that in time of peace, the organization of the state troops, their supplies and equipment, may not be as complete or the personnel so thoroughly trained, as in the regular service. There must always be a difference in degree between a body whose sole present occupation is preparation for possible war and one that, while having essentially the same purpose, can give but part of the time and energy of its personnel. The problem then is to determine a plan of organization and training that will fit the officers and men of the national guard as fully as practicable under the conditions of their service and yet make the conditions of service in times of peace such as will attract and retain men of the best type.

The organization in its administrative and tactical units, the personnel in numbers, rank and duties must necessarily conform as closely as possible to that prescribed in regulations. In the appointment of officers, their promotion and assignment to units, and in the recruiting of the hospital corps, however, concession is to be made, for the present at least, to local association in order to enhance the esprit so essential to retain interest in the service in time of peace.

The personal element enters very largely into service in the national guard. Local associations and friendships; pride in the regiment or other organization to which he belongs and in which he feels that he is an integral part, helps to secure and retain the soldier, to quicken his interest and forms an incentive to

*Read at the 20th Annual Meeting.

Digitized by Google

individual and organization efficiency. Patriotic motives and love of the flag serve to enlist men for war in time of actual need, but they appeal with but little force in time of peace. Because of this consideration, appointments of officers of the medical corps of state troops and their promotion to the grade of major must largely be governed by local needs. Promotion to the latter grade cannot be made according to lineal rank in the medical department. But as applied to the commissioned personnel, this consideration, the personal one of sentiment, would be of even less importance than the practical one, that of having officers living within easy access to the organizations to which they are assigned. The surgeon of a regiment should be in touch with his organization throughout the year and not join it only at the time of the annual encampment. This might not be the case if promotions were made lineally in the department instead of by regiment. True, the assistant surgeons, his juniors, living in the regimental territory, might be able to do the interim work, taking care of equipment, instructing the hospital corps and also the officers of other branches of the service in sanitary measures and the care of troops, examining recruits and maintaining the physical standard of the regimental personnel, and the numerous other duties required, but this would not be conducive to efficiency and discipline in the sanitary personnel or to the physical or sanitary welfare of the regiment. If local interest and proximity to headquarters is necessary for the commissioned personnel, it is even more important for the enlisted men.

The necessity for frequent drills and hours of instruction, together with the sense of comradeship and local pride, makes it advisable to enlist men locally for local organizations. The substitute for this would be schools of instruction for the hospital corps, located in populous centers where sufficient personnel could be enlisted and from which the necessary personnel could be detailed for service in the various organizations when necessary, as in their annual encampments. This would not, however, seem to offer superior advantages with respect to instruction, except in so far as it relates to drill in larger bodies, while it would take away the esprit and emulation which now exists in the hospital corps attached to the different regiments. It would also deprive the surgeons attached to these various or-

Digitized by Google

ganizations of the discipline and personal benefit obtained in instructing and handling their own hospital corps. It would be better to send the men from the various organizations to a camp of instruction for a week, independently of the annual encampment, but it is doubtful if a large percentage of the personnel could spare the time for this, even were the expense not to be considered, in addition to the time necessary for the period of the annual encampment.

The organization of the sanitary personnel of the guard is to be completed by the formation of ambulance company and field hospital units as prescribed by regulations, one for each brigade or corresponding unit, on a peace footing, one of each for every 2,500 men. These, too, must be recruited in one locality or from a territory within easy reach of some central point. It would follow then that our ambulance companies and field hospitals must be drawn from the chief centers of population in our states, in order that sufficient men of the right kind could be recruited from a small radius.

These men, especially the field hospital, need more advanced instruction in the care of the sick and wounded and should be called together frequently for instruction and training in their duties. I believe that the sanitary personnel directly attached to troops is comparatively complete in the various states, but except in one or two states the same cannot be said of the independent sanitary units, the ambulance and field hospital companies. The medical corps of the guard will not properly come into its own until these organizations are affected. They are needed to give dignity to and emphasize the importance of the sanitary troops in time of peace as well as being absolutely essential to service in time of war. It has taken the regular service a long time to bring the medical department into the place of importance it deserves. Not until the mobilization of the complete organization of the various sanitary units at the maneuver division at San Antonio did the line and staff of the army fully realize the importance and necessity of such an organization complete for a war footing or recognize it as an essential complement in every maneuver in which a tactical unit of more than regimental strength was engaged.

In the national guard, too, the time is come when the general

Digitized by Google

in command and the commanders of his constituent units must no longer look upon the duties of the medical department as concerned only with the care of latrines, the disposal of kitchen waste and even the care of the sick and of the wounded in the firing line, but must also be concerned with the larger problems of caring for the wounded and removing them as an incumbrance to the fighting strength. In our annual encampments more and more time is being spent in tactical maneuvers, but as yet but little concern is given to part that the sanitary troops must play. It is just as important that the surgeon or the hospital corps man be trained in mimic warfare for the part he is expected to play in actual service as it is for the officer in command of a company or the man who carries a gun.

Not until we complete our field organization will we receive the necessary actual training for our field duties, but will be told, as in times past, to follow along and be on the spot in case of accident or, when the regiment is engaged, to "establish aid stations." Not until then will the field order include the disposition of the sanitary troops as required by field service regulations. We might, as has been done after much solicitation in the last two encampments attended by the writer, designate a certain locality for an imaginary dressing station of an imaginary ambulance company, or point out a suitable spot for a supposititious field hospital, but it would be much better training had we the actual equipment and personnel of these two units and would add greatly to the estimation of the importance of the sanitary troops of the national guard as it did to those of the U. S. Army at San Antonio. The personnel of the necessary complements, field hospitals and of ambulance companies on a peace footing as prescribed in regulations could easily be secured in our cities or larger towns, as the service would be such as would attract men of the best type.

These organizations may well take the place of companies of instruction, not only for their own personnel, but for men belonging to the other organizations in the vicinity who may be detailed for such instruction. A well organized and efficient field hospital could be of great service to a community in case of sudden emergency, because of a great disaster such as has occurred recently, as in the Darr mine or the Tonopah disaster. The

Digitized by Google

sending of a field hospital personnel and equipment promptly to the scene of such a disaster would be of great humanitarian value, would give the personnel valuable training and would, in addition, increase respect and allegiance for the state troops. It would help disarm some of the feeling existing against them by demonstrating that they could be of utilitarian value in time of peace for other purposes than keeping order in the event of strikes.

The medical equipment and supplies of the organized militia was discussed fully in a paper by Major Darnall, Medical Department, U. S. Army, recently read before this body. These should be uniform with the regular service and should be furnished for each state through its own medical supply depot, which should be under the direct charge of a medical officer. The various organizations throughout the state could be supplied by the depot upon requisition. To insure uniformity, all permanent articles should be purchased from the medical department of the Army. Each regiment or separate battalion should have the equipment prescribed for a regimental infirmary in case the complement of field hospitals are also provided. In case the organization possesses good armory facilities, this should be kept in its possession, the surgeon being responsible for its condition and keeping it complete by requisition upon the medical supply depot.

The equipment of a field hospital and an ambulance company in the proportion of one for each brigade or, as recommended by Major Darnall, one of each for each quota of 2,500 troops, should also be issued to these organizations in case they possessed good armories. Otherwise they should be kept at the medical supply depot at the State Armory.

It is questionable whether it would be advisable to equip a field hospital completely with articles such as medicines, drugs, rubber articles, etc., which may deteriorate. The medical and surgical chests, together with the sterilizer chest and extra dressings, would furnish a sufficient supply of medicine, dressings, surgical instruments, etc., for the field in time of peace and would serve the purpose of demonstration. Tentage, bedding and furniture units should be complete.

Complete transportation equipment could also be dispensed

Digitized by Google

with, as this could be secured locally for use in time of peace. The ambulances now owned by the various regiments could be used to help make up the quota of ambulances while in camp.

The important thing is to organize the personnel; giving them equipment enough for their instruction and training and completing the equipment when conditions permit. Complete equipment would certainly follow. As field hospitals and ambulance companies are, in fact, separate organizations, the state appropriations for armories should apply to them as well as to other organizations.

The system of records and reports employed by the medical department of the army should be adopted in the national guard. In case of being called into service, the different systems in use would give rise to much confusion. The administrative work of making out papers and reports is such that it cannot be learned in a day, so that it is necessary to become familiar with it in time of peace. The administrative work in the field at the time of encampment should be given more careful attention. This is especially true of the management of sick call. The same considerations should obtain as in actual service. It is important for the commander to know the force available for service and for this reason it is necessary that the men reporting at sick call be examined carefully and that all not able to do duty appear on the sick report. In time of war, men not on sick report would not be permitted to escape duty. No more should this be done in times of peace, for the purpose of avoiding possible criticism on account of the number of sick.

The importance of the instruction of the sanitary troops should receive greater emphasis. This could be done for the enlisted personnel in the various organizations by carrying out a systematic course of instruction as laid down in the medical manual modified to meet local conditions. Instruction in field service could be given in separate camps of instruction.

Schools of instruction should also be available for medical officers. The school of instruction conducted at Antietam and other places was of the greatest benefit to medical officers of the various states who attended. State or division schools of instruction available for all medical officers for a week's instruction should be established. Corresponding schools or camps

Digitized by Google

of instruction have been maintained recently by several states. Instruction should be given by competent teachers, preferably from the regular service.

The annual encampments with their attendant maneuvers should be made of more value to the medical officer with respect to the management of sanitary organizations and units in the field. More could be accomplished by working out radical problems with the sanitary troops alone, more time could be given and the problems could be more completely carried out. The medical officer, just as much as the line officer, needs technical military training in addition to their purely professional qualifications as physicians, surgeons or sanitarians. The purpose of military organization is training for possible war. This is the only excuse for its existence. It is necessary then, that the medical department, as well as the line and other departments, be trained in time of peace for war service, in order that its relief work in handling the sick and wounded be coordinated with other branches of the service and not interfere with the strategical plans of the commander.

This coöperation and ability to adjust his plans to those of the commander involves an ability on the part of the medical officer not only to grasp the larger plans of the commander, but to understand as well the operation of the other branches of the service. It demands a knowledge of military problems in general and an ability to predicate the probabilities of an engagement or campaign. This can only be secured by a study of the problems of military service in campaign, by working out the map problems presented by the correspondence school, by inducing the officers of line and other branches of the service to recognize the importance of giving the medical department its proper place in the planning and carrying out of maneuver problems, and lastly, by providing the medical department in time of peace with the equipment and personnel of the sanitary units which it will have to handle in case of war.

DISCUSSION.

Captain W. P. Morrill, N. G. Md., stated that in Maryland they were trying to have medical officers at centers and that he advocated this plan.

Digitized by Google

What was needed was not regimental unity but organization unity. Officers should be taught command with the men and this can only be done in cities, and this will only be accomplished when the department is built up distinct from the regiment.

Captain H. D. Thomason, U. S. A., said that while he agreed with Major Edwards it must be realized that conditions are different in different states. Pennsylvania had probably at first best not try to separate from regiments but this should be the ultimate aim. In some states newly organized, for example Tennessee and North Carolina orders ordinarily read that all personnel shall be assigned to sanitary units and also read how they shall be detailed in war.

Lieut. Colonel J. A. Hall, N. G. Ohio, said he also wished to go on record as agreeing with Major Edwards. In Ohio, both plans had been tried, first all regimental, then all sanitary units. This year he recommended small regimental personnel with regiments. It is difficult to enlist all men in the sanitary corps and not by regiments. He thinks there should be only the personnel of an infirmary with a regiment, say five men, then if war comes they can take charge and instruct green men. It is also necessary to have some men with regiments to take care of equipment. Local pride does a good deal to keep up organizations and as a matter of fact would be of benefit to the regular establishment. In peace, work is necessarily local. He, however, does not agree with Major Edwards that a small amount of equipment will answer. A start may be made in this way, but everything should be complete and such as men will have to work with. There are perhaps 165,000 doctors in the United States and in war nearly all would want to serve but proper organization is of extreme importance.

FEB 1 1915

Lieutenant A. H. Lindorme, N. G. Ga., "It is not possible to have one organization in Georgia. Georgia has brigades and for recruiting must be separated. I think it important to have regimental organization for efficiency. This works well and acquaintance promoted thereby is desirable."

Major William P. Love, N. G. Ohio, stated that he had enjoyed the paper very much but that he differed with some of the speakers. It was very pleasant to have regimental organizations in the Guard and he was proud of his regiment but in case of war he would prefer to go with another regiment as there was too much local feeling in one's own regiment and this he believed hampered the surgeon in the performance of his duty as it was sometimes necessary to act in a manner which would be likely to create bad feeling at home.

Lieut. Colonel L. H. Reichelderfer, N. G. D. C., said in his opinion an independent medical department is far more desirable than the regimental organization. Two years ago a department organization was made in Washington all officers and commissioned in the department being nominated by the Chief Surgeon. This is the same plan pursued in regiments.

Lieut. Colonel J. A. Hall, N. G. Ohio, stated that he did not know the Organized Militia was so far behind. He thought that in all states the Dick Bill had been followed and that they had a medical department and

Digitized by Google

a hospital corps. This was the case in Ohio but they were assigned to regiments.

Major Homer I. Jones. N. G. Ind., said that he wished to go on record that states can have a separate medical department. He believes Indiana was the first state to adopt this plan which was put into effect some ten years ago. Medical Officers are assigned to regiments as seems best. This is done at headquarters. This practice is pursued for the entire state and for the entire Guard. In camp, medical officers may be in field hospital one year, a regiment the next and another regiment the third year. Some difficulties occur in the examination of recruits. On account of the distribution of the troops it is necessary to rely partly on civilian practitioners. It is his belief that when you take away chance for promotion for faithful service a serious mistake has been made, for this hope of reward is naturally a strong one.

Captain H. D. Thomason, U. S. A., read the organization for Tennessee to show what is being done in states which are organizing at present.

Captain ——— ———, N. G. Ind., said that the state law provides that the governor may make changes to conform to changes in regular establishment. Two recent circulars conflict, so in Indiana there is no sanitary inspector. He asked that Captain Thomason explain this discrepancy.

Captain H. D. Thomason, U. S. A., stated that Circular 25 was not referred to the assistants in the office of the Division of Militia Affairs and it was only intended to apply to Indiana. It is only a suggestion and as a matter of fact did not even apply there. The Chief of the Division has promised to change it.

Major T. J. Sullivan, N. G. Ill., said that the organized militia had two main purposes, first as part of the forces of the general government, federal forces, and second, local for use in cases of riots, etc. For the former if organization and equipment are different great difficulties will arise when called into service. He cited the changes made since 1898 and again urged uniformity. Untrained officers would be worthless. We train ourselves as one organization and for this purpose we have not yet reached a sufficient state of uniformity.

Captain ——— ———, N. G. Ind., said that at the annual inspection the inspector had reported deficiencies in an improvised hospital and shortly afterwards a proper hospital was secured.

Colonel Joseph K. Weaver, N. G. Pa., described the organization in Pennsylvania. He stated that while there is a distinct corps it is assigned. He stated further that while Pennsylvania had not complied entirely with the Dick Bill they have made progress.

General G. H. Torney, U. S. A., stated that he had been particularly impressed with Major Sullivan's remarks. So far as the keeping qualities of supplies are concerned, rubber goods deteriorate but not medicines. Chloroform of the Civil War was still found to be good only recently.

Major Edwards in closing the discussion of his paper said:

"From the remarks of some of the officers, I fear that my ideas as to the organization of the medical department have been misconstrued. I do

Digitized by Google

not recommend that officers be appointed without reference to the medical department of the state considered as a whole. The medical department of the state should select and assign its officers by authority of the Adjutant General as is done in the regular service, but this should be done with reference to local needs if possible. The surgeon should be in touch with his regiment if assigned to a regiment, and this would be difficult if he lived at the other end of the state. The surgeons assigned also to independent units, the field hospital or ambulance company must necessarily, I believe, be selected from the locality from which the personnel is recruited. This is as true of the officers of a field hospital or an ambulance company as of any company of the line, for in their internal administration they must have the same constant attention. Additional officers from variparts of the state can be detailed to serve with them in camp, but the officers responsible for the efficiency of the organization must be in touch with it at all times.

With the regimental personnel of enlisted men compiete, some of these could also be detailed for service with the independent units while in camp, but the minimum peace strength should be organized as a company.

In the matter of equipment, I did not mean to imply that, with the exception of the transportation and the expendable articles not really necessary for purposes of instruction it is not desirable that it be complete, it should be, but it is better to start with part of an equipment than not to get started at all. We know that the medical department of the army is ready to issue complete equipment to all the ambulance companies and field hospitals, to which we are entitled. The thing to do is to get the requisition for them through proper channels and we are more likely to accomplish this by making the best use of what we have or are able to get, then by a convincing demonstration of its use and necessity we can confidently expect more.

I can not too fully express my appreciation of the work of Colonel Hall, Chief Surgeon of Ohio, he has certainly "blazed the way" in the instruction of the sanitary personnel, as a whole, in field service.

Digitized by Google

TYPHOID FEVER IN THE PHILIPPINE ISLANDS.

By Major WESTON P. CHAMBERLAIN, Medical Corps.
(President of the United States Army Medical Board for the Study of Tropical Diseases as they Exist in the Philippine Islands).

Part I. Prevalence and Distribution of Typhoid Fever in the Philippines.
Part II. Laboratory Investigations of Typhoid Fever in the Philippines.
Part III. Clinical Aspects of Typhoid Fever in the Philippines.
Part IV. A Study of Recent Typhoid Epidemics in the Philippines.
Part V. Conclusions.

Part I. Prevalence and Distribution of Typhoid Fever in the Philippines.

INTRODUCTION.

FROM December 1, 1908, to date of this writing (April 30, 1911), the Board for the Study of Tropical Diseases has been making for the Philippines Division the routine blood cultures and Widal examinations on the military patients suspected of having typhoid fever and also making for convalescents the cultural examinations of the stools and urine, which are required before a soldier who has had typhoid is allowed to return to duty. For nearly all cases in which we obtained positive laboratory findings a clinical history has been furnished to the Board. From this laboratory and clinical material we have been able to learn much of interest as regards typhoid in the Philippine Islands.

The greater part of our material for blood culture comes from a considerable distance, the time consumed *en route* varying from a day to several weeks. The same applies to the stool and urine specimens and furthermore these excretions are not sent for diagnostic purposes, but only to determine that the convalescent is not a bacillus carrier. Therefore the cultural examinations in a large proportion of our cases are negative. It follows that for diagnostic purposes we must depend mainly on the serum reaction. Recently antityphoid vaccination has been coming into

Digitized by Google

quite general use among the American troops. As is well known a typhoid vaccination will cause a positive Widal reaction and of late it has been becoming obvious to us that the more general use of antityphoid vaccination would largely vitiate any deductions in the future which could be drawn from positive Widal reactions in fevers of doubtful nature. For this reason we have decided to compile the results of our work up to date, the possibility of typhoid vaccination having been excluded in all of the cases referred to below.

While several articles from the pen of different authors have appeared on certain typhoid epidemics in the Philippines (11), (12), (15), nothing, so far as we are aware, has been written which gives a comprehensive view of the typhoid situation throughout the archipelago. We therefore feel that such a report cannot fail to be of value to those interested in the sanitary problems of the Philippines.

TYPHOID IN THE TROPICS.

Typhoid fever, although not classed as a tropical disease, is nevertheless one which is of great interest and importance to those practicing in the warm countries where it should always be borne in mind when the physician is confronted by a patient with any febrile disturbance.

Manson says "The existence of typhoid fever in the tropics was for long not only ignored but actually denied, even by physicians and pathologists of repute." Malaria has been the scapegoat for the diagnostic shortcomings of the tropical practitioner. At the present day it is quite generally conceded that typhoid is a common disease among the white men resident in low latitudes and that it is alarmingly prevalent among young Europeans in many parts of the tropical Orient. Castellani (2) and Rogers (3) agree with Manson in this opinion. Rogers found that among Europeans born and bred in the tropics the incidence of the disease was especially marked in children under 15 years of age.

As regards the occurrence of enteric fever among natives of warm countries less is known. Castellani (2) states that it is common. He says: "In most cases the temperature does not run the typical course described in text-books on general medicine, having sometimes a high remittent type, and at others an intermittent type, while cases of mixed infection with malaria are not rare." Rogers (3) found typhoid to be common among natives in India and believes it would be more frequently observed were it not that adult natives have acquired an immunity as a result of an attack in childhood. The sick native children are not often seen by competent attendants.

Digitized by Google

REPUTED OCCURRENCE OF TYPHOID FEVER IN THE PHILIPPINES.

In the early days of the American occupation of the Philippines it was the commonly accepted view that the occurrence of typhoid in these islands was unusual (10). That this opinion still has adherents is shown by the statements published in 1910 by Dr. Victor G. Heiser, Director of Health of the Philippine Islands. He says, "While cases of typhoid fever are undoubtedly contracted in the Philippines the disease can hardly be said to be prevalent here. To prevent its acquiring a foothold regulations were prepared * * *" (9).

For a number of years, especially since more settled conditions have allowed general resort to laboratory methods, the belief has been growing among medical officers of the Army that typhoid fever is by no means infrequent in the archipelago. It is our opinion that the disease is widespread and very common in the Philippine Islands among both white men and natives.

Nichols in 1908 called attention to the frequent occurrence of typhoid fever among the Filipinos in the Visayas especially among the children (11). Bruns about the same time stated that in his opinion typhoid was endemic in Iloilo (12). Nichols also found typhoid fever among the natives at Taytay, a typical Tagalog town located about 20 miles from Manila (13). La Garde (15) and Jackson (10) have both expressed the opinion that the frequency of typhoid among the natives is not sufficiently appreciated. Brownlee, formerly stationed at Malabang in Mindanao, states that he has found typhoid quite prevalent in Mindanao (4). Dulin, after a long tour of duty in the Cotabato valley, reached the conclusion that typhoid is endemic at all times and in all places in that portion of Mindanao (4). Shockley, who has seen much service in Mindanao, confirms the above opinions as to the prevalence of the disease in that island (4). Arlington Pond in a personal letter gives it as his opinion there is much more typhoid in the island of Cebu than is recognized. W. A. Powell from Lucena mentions the occurrence of typhoid among both adults and children. Huber states that he finds typhoid almost constantly present in the town of Bayambang, Pangasinan Province, Luzon (14). Phalen, for two years president of this Board, voiced the belief that typhoid is an ever present endemic disease throughout the Philippines (4). Many other medical officers of the army have verbally expressed the same opinion. Spanish and Filipino practitioners refer to the frequent occurrence of a "calentura," a fever of two or three weeks' duration which does not yield to quinine.

Digitized by Google

As will appear later our laboratory findings confirm the above opinions as to the *wide range* of typhoid infection in the Philippines but cannot, of course, throw much light on the *frequency* of its occurrence in the native population.

TYPHOID STATISTICS FOR THE PHILIPPINES FURNISHED BY THE BUREAU OF HEALTH.

Vital statistics in the Philippines, particularly outside Manila, are notably unreliable because of the scarcity of competent physicians and because of the great number of natives who are never seen by any medical attendant even in an illness terminating fatally. In view of the almost universal tendency to ignore typhoid fever and to consider malaria the cause of the doubtful fevers it is probable that the following figures, obtained from the Board of Health, do not err in the direction of exaggerating the death rate from enteric fever.

Table I.—Typhoid fever in the Philippines.

Calendar year.	Manila.*	Provinces.*
	Number of deaths.	Number of deaths.
1906	47	2,453
1907	77	2,133
1908	116	2,371
1909	90	2,887
1910	82	.....
Average	82.4	2,336

*Population of Manila, 1907, was 223,543, divided as follows: Americans and Europeans, 9,079; Chinese, 18,028; Filipinos, 195,292; others, 1,143. The population of the provinces referred to is, approximately, 6,434,890.

Granting a death rate of 20 per cent (which seems a liberal one and is much higher than the experiences of the Army among either white or native soldiers), the average of 82.4 deaths annually would indicate a yearly incidence of 412 cases of enteric fever in Manila or one per year for each 542 persons.

This average yearly rate of 82.4 deaths in a city of 223,543 people represents a mortality of 36.8 per 100,000. The Census Bulletins for the registrations areas in the United States show the death rate from typhoid per 100,000 to have been 25.3 for 1908, 30.3 for 1907, and 32.2 for the period 1901 to 1905 (22). The rate per 100,000 from 1901 to 1905 averaged 11.4 for Scot-

Digitized by Google

land, 11.2 for England and Wales, 13.1 for Ireland, 16.8 for Belgium and 7.6 for Germany.

The following list shows the position of Manila as compared with certain large cities in Europe (23) and America (22). The figures indicate deaths from typhoid per 100,000 of population:

1. Pittsburg 129.6	8. MANILA 36.8	15. Omaha 20.3
2. Allegheny 110.1	9. Toledo 36.3	16. Milwaukee 18.1
3. Washington ... 56.6	10. Baltimore 35.8	17. New York.....18.1
4. Philadelphia ... 52.3	11. Buffalo 28.9	18. London 12.3
5. New Orleans... 40.9	12. Chicago 28.4	19. Hamburg 5.6
6. Memphis 37.8	13. San Francisco.27.0	20. Vienna 4.3
7. St. Louis..... 37.2	14. Boston 22.2	21. Berlin 3.8

As compared with American communities it will be seen that Manila corresponds with the middle group, including such places as New Orleans, St. Louis, Toledo and Baltimore. It is exceeded only by a few cities, which are notorious for high typhoid rates. Its mortality record is far above that for the best American cities which, themselves, have an enormously greater typhoid rate than do many of the municipalities of Europe.

As regards the accuracy of the typhoid death rate in Manila, Dr. Andrews, in charge of the city morgue, states that he encounters many cases of typhoid at the autopsy of native bodies and that he considers the average of 82 deaths per year to be well within the limits. Most of the cases he finds have been undiagnosed or incorrectly diagnosed.

THE INCIDENCE OF TYPHOID AMONG AMERICAN SOLDIERS IN THE PHILIPPINES.

Considerable doubt may attach to the accuracy of the diagnoses in some of the deaths reported to the Bureau of Health as caused by typhoid, but in the case of the Army statistics for Americans during the past 10 years this possibility of error is reduced to a minimum, since every soldier seriously ill is treated in hospital and the diagnosis in nearly all instances is made with the aid of laboratory facilities.

During the year 1898 typhoid was everywhere epidemic among the untrained volunteer troops in the United States. Throughout 1899 it decreased at the home stations and was widely prevalent in the Philippines among the great numbers of newly recruited volunteers who were undergoing the hardships of a strenuous campaign. These two years would show nothing of value when comparing the admission rates for troops serving in the Philippines and in the United States. They have therefore been omitted from the tables below which begin with the year 1900 and are compiled from the reports of the Surgeon General of the Army.

Digitized by Google

Table II.—Typhoid fever in the United States Army, American troops.

Calendar year.	Philippine Islands.					United States.				
	Mean Strength.	Admissions.		Deaths.		Mean Strength.	Admissions.		Deaths.	
		Number.	Per 1,000.	Number.	Per 1,000.		Number.	Per 1,000.	Number.	Per 1,000.
1900	66882	716	10.71	141	2.11	20690	115	5.56	9	0.43
1901 (16)	59526	315	5.29	58	0.97	26115	250	9.43	17	0.64
1902 (17)	32942	201	6.10	32	0.97	39736	341	8.58	34	0.86
1903 (18)	18671	82	4.39	15	0.80	42264	246	5.82	12	0.28
1904	11996	23	1.92	5	0.42	43940	247	5.62	12	0.27
1905	11057	31	2.80	3	0.27	42834	153	3.57	13	0.30
1906	12380	48	3.88	0	0.00	40621	230	5.66	11	0.28
1907	11699	41	3.50	3	0.26	35132	124	3.53	7	0.19
1908	11971	33	2.76	5	0.41	46316	136	2.94	11	0.23
1909	12844	79	6.15	2	0.15	57124	173	3.03	16	0.28
Total	249968	1569	.....	264	.....	394772	2015	.....	141	.....
Average for 10 years	24997	156.9	6.28*	26.4	1.06*	39477	201.5	5.10*	14.1	0.36*

*Average admissions and deaths per 1,000 are based on the average of admissions and deaths for 10 years as compared with average mean strength for same period.

For comparison with the above there is given below a table covering the same period and showing the number of admissions for malarial fevers and fevers of undetermind causation.

Table III.—Malaria and undetermined fevers in the United States Army, American troops.

Caldenar year.	Philippine Islands.				United States.			
	Mean strength.	Fevers undetermined.	Malarial fevers.		Mean strength.	Fevers undetermined.	Malarial fevers.	
		Admissions per 1,000.	Admissions per 1,000.	Deaths per 1,000.		Admissions per 1,000.	Admissions per 1,000	Deaths per 1,000.
1900	66882	29.01	874.23	1.59	20690	9.67	158.47	0.19
1901	59526	25.38	501.62	0.65	26515	8.22	109.07	0.00
1902	32942	20.23	462.94	0.64	39736	7.65	93.09	0.06
1903	18671	No data..	451.33	1.26	42264	No data..	57.46	0.00
1904	11996	33.34	218.32	0.25	43940	6.25	47.43	0.00
1905	11057	35.27	258.84	0.54	42834	6.91	43.84	0.02
1906	12380	8.97	304.20	0.55	40621	7.73	50.27	0.02
1907	11699	15.73	167.79	0.17	35132	4.67	30.20	0.00
1908	11971	25.31	123.97	0.16	46316	3.80	26.69	0.00
1909	12844	25.46	112.35	0.15	57124	2.15	23.06	0.00

There was no mortality for the undetermined fevers shown in Table III, except in 1900, when it was 0.01 per 1,000 in the Philippines and 0.05 per 1,000 in the United States.

Digitized by Google

On studying these tables it will be observed that for the ten-year period the admission rate per 1,000 has been higher in the Philippines than in the United States, 6.28 as compared with 5.10. The death rate from typhoid has been three times as high in the Philippines, 1.06 per 1,000 as compared with 0.36. During the years 1907 and 1908, when the sanitary conditions and the service conditions in the Philippines closely approximated those at home, the typhoid admission rate has not materially differed in the two countries, while in 1909 it was twice as high in the Philippines as in the United States. The admissions for 1910 have been 38, making an admission rate of approximately 3.1 per 1,000, which exceeds the home rate for 1908 and 1909.

In considering the comparative admission rates for typhoid in the Islands and at home it is important to bear in mind that in the United States the water supplies of many towns and posts are not above suspicion, yet little care is generally exercised by soldiers to avoid drinking these doubtful waters. In the Philippines distilled water of unquestioned purity is everywhere furnished for soldiers and the fear of dysentery and cholera, together with the stringent orders on the subject, make the drinking of this water very general. If the same carelessness in drinking, which we see everywhere at home were practiced here we believe that the typhoid rate would be very much higher than it is at present.

A consideration of the above remarks points very strongly to a widespread and easily accessible source of typhoid infection in these Islands. That this source is also accessible to the native troops is shown by the following table:

Table IV.—Admissions among Philippine (Native) Scouts of U. S. Army for typhoid, malaria and undetermined fevers.

Calendar year.	Mean strength.	Admissions.				Deaths.*		
		Typhoid fever.		Malarial fever per 1.000.	Fever undetermined per 1.000.	Typhoid fever.		Malarial fever per 1.000.
		Number.	Per 1,000.			Number.	Per 1,000.	
1902	4826	9	1.86	704.11	35.02	1	0.21	1.66
1903	4888	5	1.02	522.09	0.00	1	0.20	2.45
1904	4610	4	0.87	367.69	34.49	3	0.65	0.43
1905	4732	7	1.48	571.01	15.64	2	0.40	0.81
1906	4759	4	0.84	393.15	21.43	1	0.20	1.19
1907	4679	6	1.28	312.67	19.45	0	0.00	0.43
1908	5085	9	1.77	236.97	20.45	0	0.00	0.19
1909	5369	7	1.30	203.95	17.69	1	0.18	0.00
Total	38948	51	.....	.....	.....	9	.....	.....
Average for 8 years	4619	6.38	1.36	.....	.....	1.13	0.24	.....

*There were no deaths from the undetermined fevers.

Digitized by Google

Table IV shows that there has been a constant though low admission rate of typhoid among the Philippine Scouts since their organization. It is certain that the diagnoses for sick Scouts are less thoroughly worked up than are those of the white troops because of racial peculiarities and the difficulty of understanding their language, and also because of the fact that many of the Scout organizations are at small and isolated posts with meager laboratory facilities. Therefore some cases of typhoid may lie hidden in the great mass of admissions for malaria and undetermined fevers, only the most characteristic cases being correctly diagnosed.

Since most of the Scouts are at posts where they come in contact with very few white men it is almost certain that they pick up their infection at the post or in the country surrounding and that the disease is not imported from the United States as might be urged in the case of the white soldiers.

The lesser incidence of typhoid among the Scouts as compared with American troops corresponds with Roger's experience with native troops in India. He attributes this difference to the influence of typhoid in childhood.

DISTRIBUTION OF TYPHOID FEVER IN THE PHILIPPINES.

The distribution of typhoid throughout the archipelago, in so far as it has come under the notice of the army medical officers, is shown in the following table:

Table V.—Distribution of typhoid fever in the Philippines, Army statistics.

Town or post.	Island.	Number of admissions for typhoid fever.								
		1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911. Part.	Total.
Keithley	Mindanao	.....	2	11	+	1	.....	.....	.....	15
Marahui	do	5	.....	.....	.....	.....	.....	.....	.....	5
Cotabato	do	.....	(1)	.....	.....	(1)	.....	2 (1)	.....	2 (2)
Vicars	do	3	.....	.....	.....	.....	.....	.....	.....	3
Overton	do	.....	.....	.....	.....	.....	1	1	1	3
Malabang	do	2	.....	1	+	.....	4	.....	1	9
Ludlow	do	.....	.....	.....	.....	.....	51 (2)	22 (4)	(2)	73 (8)
Parang	do	1	.....	.....	.....	.....	(5)	.....	.....	1 (5)
Polloc	do	.....	.....	.....	.....	.....	.....	.....	(2)	(2)
Field	do	.....	.....	3	.....	.....	1	.....	.....	4
Zamboanga	do	1	1	2	+	.....	.....	.....	.....	5
Jolo	Jolo	.....	.....	.....	.....	1	.....	.....	.....	1
Balamban	Cebu	.....	.....	.....	.....	(1)	.....	.....	.....	(1)
Cebu	do	.....	.....	.....	.....	.....	.....	.....	.....	(1)
Naga	do	.....	.....	.....	.....	.....	1	.....	(1)	1

Digitized by Google

Table V.—Distribution of typhoid fever in the Philippines, Army statistics—Continued.

Town or post.	Island.	Number of admissions for typhoid fever.								
		1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911. Part.	Total.
Field	do	1								1
Downes	Leyte					3	1	1		5
Dagami	do				(2)					(2)
Field	do			1	13					14
Bumpus	do					11				11
Connell	Samar		3	2	+					6
Balangiga	do				(1)					(1)
Field	do		1							1
	Negros				1					1
Jossman	Guimaras	1	1	1	+		1	1		6
Iloilo	Panay				3					3
San Pedro	do			15	8	2				25
Mills	Corregidor						2 (1)	2	1 (1)	5 (2)
Stotsenburg	Luzon			1	3	3	1	2	1	11
Lucena	do							(3)		(3)
Gregg	do			7	+			(13)		8 (13)
Infanta	do				(1)					(1)
Wallace	do		3	1	+			(1)		5 (1)
San Fernando, Union	do							(19)		(19)
Pasay	do	1								1
Wilhelm	do							2 (1)	(1)	2 (2)
Manila posts*	do	3	8		7	12 (1)	2 (1)	12 (3)	2 (2)	46 (7)
Imus	do						1			1
Daraga	do	2		2	+					5
Floridablanca	do								2	2
Bakoor	do	1								1
Los Banos	do						1			1
Bulan	do	1								1
Eldridge	do						10			10
McGrath	do	1					1	1	1 (1)	4 (1)
Bayanbang	do							(2)		(2)
Canacao	do								(1)	(1)
Pilar	do	1								1
Mariveles	do						1			1
McKinley	do		8	1	2	4	2	2	1	20
Field	do		2							2
San Pablo	do								(1)	(1)
Malahi	do		1							1
Total		23	31 (1)	48	37 (4)	37 (3)	81 (9)	48 (47)	10 (12)	323 (75)

Numbers enclosed in ( ) represent native cases. No statistics available for natives 1904-1906.

Spaces marked + indicate that one or more cases occurred at the locality indicated, but the records do not show the number at many of the posts and give only the total for the year. In the horizontal totals + has been counted as one case only, consequently horizontal and vertical grand totals do not agree.

*Includes Division Hospital.

The figures in Table V were obtained from the reports of the Surgeon General of the Army, the records of the Chief Surgeon, Philippines Division, the records of this Board and in a few instances from personal knowledge of members of the Board. The table does not pretend to be complete, but it is sufficient to indicate how widely spread throughout the archipelago is the infection with typhoid. In considering Table V it must be borne in mind that the localities mentioned represent a majority of the places in the islands where there are competent observers or laboratory facilities. (See page 62 for continuation of this note.)

Digitized by Google

WIDAL EXAMINATIONS ON THE BLOOD OF HEALTHY ADULT NATIVES.

With a view to determining how large a proportion of healthy natives might show the influence of antecedent typhoid, as evidenced by a positive Widal reaction, the Board has obtained the blood of 307 adult male Filipinos and the results are shown in Table VI. These examinations were made in 1910 and 1911.

Table VI.—Widal examinations on the blood of healthy Filipino adults.

Station or town.	Island.	Race or tribe.	Number.	Widal, dilutions about 1-20.		Widal, dilutions about 1 50.	
				Positive.	Negative.	Positive.	Negative.
Parang	Mindanao	Moros	12	1	11	1	0
Parang	do	Filipino	52	4	48	4	0
Camp Wilhelm	Leyte	Visayan	12	0	12	.....	.....
Camp James	do	do	12	0	12	.....	.....
Cotabato	Mindanao	Ilocano	12	0	12	.....	.....
Camp Wallace	Luzon	Visayan	12	0	12	.....	.....
Regan Barracks	do	Ilocano	12	2	10	0	2
Camp Connell	Samar	Visayan	12	2	10	0	2
Isabela	Basilan	Moros	12	0	12	.....	.....
Bojelebung	do	do	6	0	6	.....	.....
Bumpus	Leyte	Visayan	12	1	11	0	1
Fort Mills	Corregidor	Macabebe	36	4	32	2	2
Camp Gregg	Luzon	Visayan	40	0	40	.....	.....
Camp Hay	do	Igorot	20	2	18	0	2
Camp Hayt	Samar	Cagayan	12	4	8	2	2
Kalington	Luzon	Ilocano	13	0	13	.....	.....
Fort Mills	Corregidor	Visayan	20	0	20	.....	.....
Total	.....	.....	307	20	287	9	11
Percentage	.....	.....	.....	6.5	93.5	2.9	.....

Reactions in 1-50 dilution were done only on those cases which proved positve in 1-20 dilution.

There is little data available to indicate what proportion of healthy men in any country might give a positive serum reaction from causes other than antecedent typhoid. The length of time that the Widal reaction persists after convalescence from enteric fever is variable, ranging from 6 weeks to 20 years, the long continuance in some cases perhaps being due to bacilli persisting in the gall bladder. The fact that 6.5 per cent of the adults we tested showed a positive reaction in 1-20 dilution and 2.9 per cent

(Continuation of note pertaining to Table V.)

The Bureau of Health mortality statistics for the provinces cover all parts of the Archipelago except Mindanao, Jolo and adjacent small islands. These reports show typhoid to be an extremely common cause of deaths in all of the important islands, the mortality rate in some provinces for certain years ranging from 50 to more than 160 per 100,000 of population. We have not gone into these figures in more detail because of the uncertainty which attaches to the diagnosis of typhoid, or any other disease for that matter, in the provincial reports.

Digitized by Google

in 1-50 dilution probably points to an antecedent attack of typhoid in some of these individuals and, when taken with the statistical evidence already presented, is suggestive of a widespread distribution of the disease in the native population.

THE INFREQUENCY OF SEVERE AND FATAL EPIDEMICS AMONG NATIVES.

The above quoted statistics and examinations indicate to our minds that typhoid is very generally present in the Philippines. The water supplies are almost universally bad, the proper disposal of excreta is entirely neglected, the crowding in the habitations and the native manner of eating favor contact infection. Yet in spite of these unfavorable conditions there is little evidence that severe and destructive epidemics of typhoid fever occur among the Filipinos. The relative scarcity of typhoid among the natives in India is thought by Rogers to be due to immunity acquired in childhood. Nichols (11) expresses the opinion that typhoid is prevalent among children in the Philippines. To determine if evidences of previous typhoid in Filipino children could be detected we performed Widal reactions on the blood of 284 healthy school children. The results are shown in the following table and are entirely negative except for three cases at Ormoc, a town where we had good reason to believe that typhoid had recently prevailed.

Table VII.—Widal examinations on the blood of healthy Filipino school children.

Town.	Island.	Race or tribe.	Number.	Widal, dilutions about 1-20.		Widal, dilutions about 1-50.	
				Positive.	Negative.	Positive.	Negative.
Baguio	Luzon	Igorot	45	0	45	.....	.....
Paranaque	do	Tagalog	30	0	30	.....	.....
Lucena	do	do	50	0	50	.....	.....
Ormoc	Leyte	Visayan	14	3	11	1	2
Malabang	Mindanao	Filipino	7	0	7	.....	.....
Parang	do	do	30	0	30	.....	.....
Iligan	do	do	22	0	22	.....	.....
Jolo	Jolo	Moro	36	0	36	.....	.....
Floridablanca	Luzon	Filipino	26	0	26	.....	.....
San Nicholas	do	do	24	0	24	.....	.....
Total			284	3	281	1	2
Percentage			.....	1.0	99.0	0.3	.....

Digitized by Google

It will be seen that the percentage of positive results was much less than among adults. These children ranged from 4 to 13 years of age and the majority were under 8 years old. If typhoid were common among the Filipino school children it is probable that the percentage of positive reactions among them would be considerable. It is, of course, possible the disease may occur widely among infants and that the agglutinating influence had in nearly all cases passed away before the time at which we saw these children. Such an explanation, however, does not appear to us probable.

Our clinical records, to be discussed later, indicate that a considerable number of the cases which give positive laboratory finding present clinical appearances entirely different from the classic description of typhoid fever. Patients with a short course, little fever and few symptoms, were found commonly among both Americans and Filipinos. It is by no means unlikely that such cases throughout the native population are very common and that the true nature of the malady is overlooked. The disease in this form can be diagnosed by laboratory procedures alone, and it is only by working along this line that the true incidence of typhoid fever among the Filipinos can be determined.

INFLUENCE OF SEASON ON PREVALENCE OF TYPHOID.

In Europe and America typhoid fever may occur at any season, but its incidence is greatly increased in August, September and October. In India, as a whole, Roberts has shown that the disease is very generally distributed throughout the year as follows: First quarter, 18.1 per cent; second quarter, 31.3 per cent; third quarter, 28.1 per cent; fourth quarter, 22.4 per cent. The experience for 4 years (the only ones for which monthly records are available to us) shows that in the Philippines the disease is distributed throughout the year in a quite regular manner.

Digitized by Google

Table VIII.—Incidence of typhoid fever by months in the Philippines.

Month.	1904.	1908.	1909.	1910.	Total.	Quarter, number.	Quarter, per cent.
January	2	3	1	7	13		
February	1	5	7	10	23		
March	1	13	7	21	42	78	24.61
April	1	8	1	2	12		
May	0	9	2	0	11		
June	5	14	2	0	21	44	13.88
July	4	25	5	4	38		
August	2	23	8	0	33		
September	1	14	3	1	19	90	28.39
October	3	12	43	2	60		
November	1	17	3	0	21		
December	2	13	5	4	24	105	33.12
Total	23	156	87	51	317		

The considerable increase in the last quarter may be considered accidental since the 43 cases in October, 1909, all occurred at one post, the Ludlow Barracks epidemic.

The season varies considerably in the Philippines in different localities and for different years, but in general it may be said that the period from December 1st to June 1st represents the dry season.

Since our military patients are mainly drawn from a population consisting almost exclusively of young adult males it has been impossible for the Board to draw any conclusions as to the influence of sex or age on the incidence of typhoid in the Philippines except in so far as we have mentioned the latter factor in the paragraph below Table VII.

Part II. Laboratory Investigations of Typhoid Fever in the Philippines.

During the two and a half years that the Board has been working on the subject of typhoid fever the following examinations have been made in the case of persons having typhoid fever or suspected of having it.

Table IX.—Examinations by the Board on persons suspected of having typhoid, December 1, 1908, to April 30, 1910.

Results.	Widal tests.	Cultures from stools.	Cultures from urines.	Cultures from blood.	Cultures from bile.
Positive	192	19	9	17	1
Negative	261	498	320	139	0
Total	453	517	329	156	1

The 453 serum reactions were performed on the blood of 369 persons. The 192 positive Widal reactions were made on the blood of 177 persons, of whom 118 were Americans and 59 were Filipinos. The 517 stool cultures were made on 199 individuals, the 329 urine cultures on 164 individuals, and the 156 blood cultures on 141 individuals.

Digitized by Google

BLOOD CULTURES, 17 POSITIVE, 139 NEGATIVE.

The organisms were sought in the blood by placing it in sterile bile, incubating for 24 hours and plating on Endo medium. Many of our specimens of blood were very old and the amount small, which accounts partially for the small number of positive findings. The fact that the disease in many instances was far advanced needs also to be considered. All of our positive blood cultures were obtained from patients in the Division Hospital or at posts we visited and from these patients we obtained a large amount of blood and placed it at once in the bile medium. Since all of these cases came under our immediate observation we feel sure that the days of the disease, as shown in the following table are approximately correct.

Table X.—Days on which positive blood culture was obtained.

Day.	Number positive.
2d	1
3d	1
6th	2
7th	2
8th	3
9th	3
11th	1
12th	1
13th	1
4th	1
Unknown	1
Total	17

Among the cases which showed bacilli in the blood at the end of the first week or later the following are of interest:

Table XI.—Relation of Widal reaction to positive blood culture.

Case.	Blood positive—Day.	Widal negative—Day.	Widal positive—Day.
3	14th	12th	14th.
4	7th	7th	9th.
258	8th	6th	9th.
W	7th	6th and 10th	21st.
B	8th	7th	8th.
T	12th	12th	(?).
402	6th	6th and 7th	22d.

Digitized by Google

STOOL CULTURES, 19 POSITIVE, 498 NEGATIVE, AND URINE CULTURES, 9 POSITIVE, 329 NEGATIVE.

Stool and urine specimens were smeared over the surface of petri dishes containing Endo medium. Cultures from the excreta were rarely employed for diagnosis. Nearly all of those shown in the table were made during convalescence to detect possible carriers, three negative cultures at 6 day intervals being required before a soldier was returned to duty. These facts accounts in the main for the low proportion of positive findings. Another factor which must be considered is that the stools and urines in many cases had come a long distance. Our experience, both practical and experimental, has been that after a few days no typhoid bacilli can be obtained by cultural methods from a stool, whether naturally or artificially inoculated with *Bacillus typhosus*.

CHARACTER OF TYPHOID ORGANISM ISOLATED IN THE PHILIPPINES.

At the end of 1908 this Board has found the blue strain of typhoid in 5 patients in the Philippines and expressed the opinion that the prevailing type of organism in the Philippine Islands might be one which produced primary acidity in litmus milk followed after several days by alkalinity. Further experience has not confirmed this view. During nearly two years we have isolated only one blue typhoid organism from either a native or a white man and recently, on re-testing a number of organisms isolated in the Philippines, all except that one failed to give the blue reaction. It is therefore probable that the blue strain occurs with no greater degree of frequency in the Philippine Islands than in the United States. The distinction in type is probably of no importance and the variations reported may at times be due to the use of milks containing variable quantities of monosaccharid. In fact acidity followed by alkalinity is given as the type for typhoid by Hiss and Zinsser (20).

It appears that there is no constant difference, either in their litmus milk reaction or in their behavior in the presence of immune sera, between the strains of *Bacillus typhosus* found here and those met with in the United States.

WIDAL EXAMINATIONS, 192 POSITIVE, 261 NEGATIVE.

The 192 positive examinations were made on the blood of 177 individuals of whom 5 had received antityphoid vaccination and two others gave a clear history of previous typhoid, leaving 170 cases in which the positive reaction was of diagnostic value.

Digitized by Google

Only the microscopic method was employed by us in making the agglutination test, both loss of motility and clumping being required before making a positive report. A dilution of 1-50 was used and one hour allowed to elapse before recording the result. Part of these tests were made with fluid blood and the remainder with dried blood, the dilution in the latter cases being, of course, only approximate.

Nichols (11) and Bruns (12) in the islands of Leyte and Panay investigated two epidemics in which they found an absence of the Widal reaction until very late in the disease. In 11 cases Nichols found it absent on an average till the 25th day. In the 177 positive Widal reactions obtained by us we were often dependent on others for the statement of the day of the disease. As thus given the figures are as follows:

Table XII.—Days on which positive Widal reactions were obtained.

Day.	Number.	Day.	Number.	Day.	Number.	Day.	Number.
2d	13	10th	5	18th	3	30th	2
3d	13	11th	7	19th	3	36th	1
4th	12	12th	1	20th	1	37th	2
5th	14	13th	5	21st	3	45th	1
6th	8	14th	3	23d	1	58th	1
7th	14	15th	2	25th	1	73d	1
8th	12	16th	2	26th	3	Unknown*	35
9th	6	17th	1	27th	1		
Total							177

*This "unknown group contains 5 positive Widals obtained in persons who had been vaccinated against typhoid and who did not have the disease, two obtained in persons not suffering from typhoid, but giving a clear history of a previous attack, a few for whom we never received records and a series of 20 natives found at San Fernando, who undoubtedly had the disease but from whom no history was obtainable.

From a study of the temperature charts of the patients we feel sure that many of the cases were somewhat further along in the disease at the time of the appearance of the Widal reaction than would be indicated by the above figures. On the other hand most of the cases reported above as having a very late serum reaction undoubtedly would have shown one earlier, but none was done till the date indicated in the table. In a series of cases in which a negative followed by a positive reaction was obtained and in which the onset of the disease has been fixed with reasonable accuracy from the clinical records we found no notable prolongation of the preagglutination stage. The figures appear in Table XIII.

Digitized by Google

Table XIII.—Days on which Widal appeared in patients who had previously given a negative reaction.

Case number.	Widal negative—Day.	Widal positive—Day.	Case number.	Widal negative—Day.	Widal positive—Day.
5	6th and 7th	8th	137	4th and 7th	10th.
21	10th	11th	117	7th and 8th	10th.
7	7th	8th	108	1st and 3d	4th.
4	7th	9th	138	6th	7th.
3	12th	13th	131	2d	4th.
258	6th	9th	128	2d	5th.
1076	6th	7th	.....	7th	8th.
350	2d	4th	213	5th	10th.
352	7th	8th	402	6th and 7th	12th.
383	15th	24th			
Average					9th.

From our 89 characteristic cases of typhoid fever, analyzed below and in which the date of onset could be quite definitely fixed, we obtained positive Widal reactions on or before the 10th day of the disease in 72 per cent and on or before the 15th day in 87 per cent. In all but one of the remaining 13 per cent no serum test had been performed prior to the 15th day and it is probable that all or nearly all were positive before that time.

From the above figures it is evident that the experience of the Board *does not indicate any general tendency toward unusual delay in the development of agglutinins in the blood of patients suffering from typhoid fever in the Philippines.*

We have analyzed the clinical records of over 100 patients with elevations of temperature and for whom negative Widal reactions were obtained. In only one instance was there the slightest reason to believe that the febrile condition was enteric and in this single case the temperature curve and symptoms were not entirely characteristic. Repeated typhoid serum reactions were negative up to the 14th day, after which time no specimens were submitted. Serum reaction with *Bacillus paratyphosus* was reported negative but fell in the class of reactions which some observers report as "partial." The leucocyte count was 9,000 and there was 33.8 per cent of small lymphocytes and 9.2 per cent large mononuclears. No pigmented leucocytes were seen. A relapse occurred in this patient which promptly yielded to hypodermic use of quinine, although previous examinations for parasites and previous use of quinine by mouth had resulted negatively. The true nature of this case remains in doubt.

TYPHOID BACILLUS CARRIERS.

Failure attended our efforts to detect carriers as a result of 517 stool cultures made on 199 individuals and 329 urine cultures

Digitized by Google

made on 164 individuals. However, we discovered one typhoid bacillus carrier by accident while examining for dysentery the stool of a patient who had been having loose movements of variable frequency for nearly 4 months.

The patient aged 30, gave no history of typhoid fever. He had been in the Philippines one year and had 10 years' service in the army. He had dysentery in 1907. The last part of June, 1910, while on a mapping detail in the field, he developed a very severe attack of diarrhoea with some blood and mucus. Did not go on sick report and diarrhoea persisted. Lost about 28 pounds in weight. On admission to Division Hospital, September 5, 1910, he was having about 4 stools daily, usually liquid and yellowish or clay-colored. They contained neither blood nor mucus. During his stay in the hospital from September 5th to October 14th, 1910, his temperature never went above 99.4 F., and was generally normal. Pulse averaged 90, at times reaching 110. Repeated examinations of the stools for ova and amoebae were negative.

The first stool culture was made on October 13th, the day before he sailed for the United States and about 110 days after his original attack of diarrhoea. It was positive for *Bacillus typhosus*. Meantime the patient had sailed for the United States but by telegraphic request we obtained a specimen of his blood while the transport was at Mariveles and this gave a positive Widal reaction.

Under date of November 19, 1910, the Commanding Officer of the General Hospital at Presidio of San Francisco notified us that the soldier was still excreting typhoid bacilli.

As far as we can learn this is the only carrier which has been found in the Philippines.

PARATYPHOID FEVER AND GROUP AGGLUTINATIONS.

Strong, in 1902, reported the recovery at autopsy of a paracolon organism from a soldier who had died with the usual symptoms of typhoid (21). Ruedeger, at the Bureau of Science, recently, isolated a paratyphoid strain from the blood of a dog which died of rabies and showed also a purulent pneumonia. Our experience with the paratyphoid organism is confined to one case. The patient, who also had tuberculosis, ran a febrile course of 18 days' duration, the curve suggesting mild typhoid fever. There were the usual premonitory symptoms of typhoid fever and the progress of the disease was characterized by constipation, tympanites, pain in head and neck, splenic tumor and normal leucocyte count. From the blood was obtained a pure culture of *Bacillus paratyphosus* "A." The blood serum at first agglutinated both *Bacillus typhosus* and *Bacillus paratyphosus*. At a later date it failed to react with the former organism.*

*Since this writing we have isolated *Bacillus paratyphosus* "A" from the blood of a Japanese with a continued fever at Camp Stotsenburg.

Digitized by Google

We have tried the agglutination reaction with *Bacillus paratyphosus* on a considerable number of patients and aside from the above have obtained positive reactions only twice, one of these sera also reacting with *Bacillus typhosus*. A more detailed report of the above case and a discussion of the subject of group agglutinations is contained in our quarterly report for December 31, 1910, and published in the Military Surgeon for May, 1911.

OBSERVATIONS ON THE BLOOD OF TYPHOID FEVER PATIENTS.

The blood of all of the patients considered were examined for malarial organisms with negative results except as noted below under complications. No other blood work was done on the cases except leucocyte counts, most of which were made at the laboratory of the Division Hospital on patients who were being treated in that institution. Thirty-six white blood counts were made on the blood of 19 patients and 31 differential counts on 15 of the same individuals. The average results divided as to race, appear below:

Table XIV.—Average white blood counts on typhoid fever patients.

	Leucocytes per cu. mm.	Polymorpho nuclears.	Small lymphocytes.	Large lymphocytes.	Transitionals.	Eosinophiles.	Mast cells.
Average, Americans	6540	66.2	25.7	6.3	1	0.6	0.1
Average, Filipinos.	10234	66.9	26.3	5.3	0.3	0.5	0.7
Average both races	7669	66.5	25.9	6.	0.8	0.6	0.3

These counts were made in the first week or ten days of the disease and do not show a tendency to the usual leucopenia, the average being normal for the white men and rather above normal for the natives. The lowest count for a native was 6,300 and the highest 15,400. For the Americans 10 counts were below 6,000, 14 between 6,000 and 10,000 and 1 was 11,500.

Rogers, in a study of typhoid in India, found the small lymphocytes to be increased above the normal maximum of 30 per cent in over half his patients. In our series this was not the case, in fact we should consider the average of 25.9 per cent as low, since it has been our experience that in the Philippines the small lymphocyte count is habitually high in healthy men, usually ranging above 30 per cent. This is true for natives and for Americans with one or more years of tropical service.

The low eosinophile count in this native series is very unusual and prob-

Digitized by Google

ably is due to the fact that most of the patients were Scouts who had been relieved of their intestinal parasites prior to acquiring typhoid fever.

Part III. Clinical Aspects of Typhoid Fever in the Philippines.

After excluding vaccinated patients, persons with clear histories of previous typhoid and one case of paratyphoid there remain the clinical histories of 157 patients sick during the last 2½ years and for whom the laboratory findings indicated the existence of typhoid infection. For clinical analysis we have divided these cases into 4 groups as follows:

Group I; 7 cases terminating fatally; 4.5 per cent.

Group II; 19 cases with short ill-defined fever of less than 10 days' duration; 12.1 per cent.

Group III; 41 cases of irregular fever of less than 10 days' duration, probably representing last part of mild ambulant typhoid types; 26.5 per cent.

Group IV; 89 cases of well marked continued fever, clinically typhoid, lasting more than 10 days; 56.6 per cent.

GROUP I.—CASES TERMINATING FATALLY.

Seven patients out of the 157 died, a mortality of 4.5 per cent. The cause of death was peritonitis following perforation of the intestine in 3 instances, toxaemia in 3, and shock following hemorrhage in one. *Bacillus typhosus* was obtained from the blood of 3 of these fatal cases and from the gall bladder of another.

Rogers found a mortality of 16.3 per cent among 129 cases in Calcutta and reports that in the British Army in India the returns show a death rate of 26 to 27 per cent at the present time (1909-1910). This indicates a more serious condition than is seen in these islands. The range in the typhoid mortality experience of the army in the Philippines for the last 10 years as contrasted with that among the troops in the United States is shown in the following table:

Digitized by Google

Table XV.—Mortality for typhoid fever in the army in the Philippines and United States.

Calendar year.	In the Philippine Islands.						In the United States.		
	American troops.			Filipino troops.			American troops.		
	Cases, number.	Deaths, number.	Mortality, per cent.	Cases, number.	Deaths, number.	Mortality, per cent.	Cases, number.	Deaths, number.	Mortality, per cent.
1900	716	141	19.69	.....	.....	.....	115	9	7.83
1901	315	58	18.41	.....	.....	.....	250	17	6.80
1902	201	32	15.92	9	1	11.11	341	34	9.97
1903	82	15	18.29	5	1	20.00	246	12	4.88
1904	23	5	21.74	4	3	75.00	247	12	4.86
1905	31	3	9.68	7	2	28.57	153	13	8.50
1906	48	0	0.00	4	1	25.00	230	11	4.78
1907	41	3	7.32	6	0	0.00	124	7	5.65
1908	33	5	15.15	9	0	0.00	136	11	8.09
1909	79	2	2.53	7	1	14.29	173	16	9.25
Total	1,569	264	.....	51	9	.....	2,015	142	.....
Average	.....	.....	16.83*	.....	.....	17.65*	.....	.....	7.05*

*The average mortality was obtained by dividing the total number of deaths for the period under consideration by the total number of cases for the same period.

It will be observed that the average mortality is a trifle higher for the Filipino than for the American troops serving in the Philippines, 17.6 per cent as compared with 16.8 per cent. It is quite probable that the death rate would be lower if every case of mild enteric fever occurring among the Scouts received the appropriate diagnosis. Rogers found a death rate of 26 per cent among 50 native Indian cases. Among the 26 Filipino cases for which we received clinical histories only one died, a mortality of 3.8 per cent. The average mortality for ten years among the American soldiers in the Philippines is very much higher than at home, 16.83 per cent compared with 7.05. This can be attributed mainly to the large amount of typhoid with a high mortality in the first four years of the decade, a time when the facilities for nursing, feeding and sheltering the patients were less favorable than in the United States. During the last six years, when the conditions in the Philippine hospitals have approximated those of similar institutions in the United States, the mortality has been no higher than at home (255 cases, 18 deaths, mortality 7.1 per cent). It *seems, therefore, safe to conclude that the type of typhoid infection now being encountered in the Philippines is, under present*

Digitized by Google

conditions, no more fatal to the American than that met with in the United States.

GROUP II.—CASES WITH ILL DEFINED FEVER OF LESS THAN 10 DAYS' DURATION.

Nineteen out of the 157 clinical records (12.1 per cent) show a slight febrile movement lasting less than 10 days with few symptoms and nothing characteristic on which to base a diagnosis. The true nature of these cases could be determined only by laboratory methods. In addition to finding a clear cut positive Widal reaction in all of the nineteen we were able to obtain by cultural methods the *Bacillus typhosus* from the stools of three and the urine of one other of this group.

GROUP III.—CASES WITH IRREGULAR FEVER OF LESS THAN TEN DAYS' DURATION, PROBABLY REPRESENTING THE LAST PART OF LATENT OR AMBULANT TYPHOID TYPES.

Forty-two cases out of the 157 (26.6 per cent) presented an irregular temperature chart which resembled the last week or ten days of the classical typhoid curve. These patients were, in our opinion, suffering from a mild ambulant form of typhoid fever and came under observation only late in the disease. Such cases were particularly numerous in the Ludlow Barracks epidemic, constituting 33 per cent of the admissions, and many of them probably never would have come on sick report had it not been for the fact that the temperature of all soldiers were being taken daily and every one with fever was placed in hospital for observation.

In addition to obtaining positive serum reactions in all of this group we isolated *Bacillus typhosus* from the stools of 5 patients and from the urine of another.

GROUP IV.—CASES WITH WELL MARKED CONTINUED FEVER LASTING MORE THAN TEN DAYS AND CLINICALLY TYPHOID.

In this group there are 89 cases (56.6 per cent of the entire 157) which ran a febrile course of ten days or more and which in nearly every instance would be considered typhoid fever from clinical observations alone. The diagnosis was confirmed in each of these cases by the laboratory findings which for the great ma-

Digitized by Google

jority were positive Widal reactions and for the remainder cultures of *Bacillus typhosus* obtained from the blood or excreta. There were 4 positive urine cultures, 5 positive stool cultures, and 15 positive blood cultures from this group.

Based on clinical appearances we divided these cases as follows: Typical, severe, 18 (20.2 per cent); typical, moderate, 46 (51.7 per cent); typical, mild, 10 (11.2 per cent); atypical, mild, (lacking a fastigium), 12 (13.5 per cent); atypical, severe, 3 (3.4 per cent). The clinical histories for many of these cases are deficient as regards the presence or absence of the less important symptoms and signs, therefore, in the analysis which follows the percentage of occurrence for some of the minor features will be an underestimate. With all the clinical records there were well kept temperature charts which rendered easy a correct estimate of the febrile type of the disease.

Onset of the Disease.—The onset was sudden in 4 cases and gradual in the remaining 85. The premonitory symptoms included headache, backache, pains in bones and joints, lassitude, anorexia, diarrhoea, abdominal pains, nausea, vomiting, chills, fever, stiff neck, vertigo and myalgia. They did not differ from those commonly encountered in the United States. Chills or chilliness were recorded in 10 cases.

Febrile Course.—The onset of the disease could be fixed with reasonable accuracy in all of these 89 cases. The length of the febrile reaction, collected in groups, each covering a 5 day period, are shown below.

Table XVI.—Duration of febrile course for 89 characteristic typhoid cases.

Days.	Number.	Per cent.	Days	Number.	Per cent.
Between 10 and 15.....	8	8.98	Between 31 and 35.....	9	10.11
Between 16 and 20.....	24	26.97	Between 36 and 40.....	10	11.24
Between 21 and 25.....	21	23.60	Over 40.....	4	4.49
Between 26 and 30.....	13	14.61	Average 25.1.....	.....	.....

The cessation of fever in all cases has been arbitrarily taken as the date after which the evening temperature did not rise above 99° F. We believe that the above figures represent the minimum of febrile course and that possibly the real average was slightly longer as a result of the patients having been taken sick somewhat earlier than appeared upon the records. The average for our series was 25.1 days. For comparison may be mentioned the 780

Digitized by Google

cases studied by the Spanish-American War Commission, where the average duration was 10.5 days (19) and McCrae's large series in America, where the average was 31 days..

The initial step-like increase of temperature characteristic of the early days in typhoid fever was rarely seen, the patients usually being well along the first week when they came under observation. A clearly marked fastigium was the rule, being present in 71 cases, 79.7 per cent of the series. For 18 persons a definite fastigium was lacking, the morning and evening excursions of temperature being pronounced even at the height of the disease. The maximum range of fever is shown below.

Never up to 103° F., 9 cases. Never up to 105° F., 45 cases.
Never up to 104° F., 26 cases. Never up to 106° F., 9 cases.

The decline of the fever was characterized by gradually increasing remissions, such as are observed in typhoid in the United States, and no chart was found showing the unduly prolonged intermittent stage described by Rogers in India.

Recrudescences and Relapses.—Recrudescences occurred in 4 cases (4.5 per cent) the lengths of the febrile disturbances being, respectively, 6, 7, 10 and 11 days. Relapses occurred in 7 cases (7.9 per cent) lasting 9, 12, 15, 16, 17, 24 and 25 days, respectively. One patient was desperately ill during the relapse.

Pulse Rate.—That the pulse rate was slow as compared with the temperature elevation was the almost universal experience, the disease in this respect conforming to the classical type in Europe and America. The low pulse rate was especially commented on by Lieut. Dulin in the Ludlow Barracks epidemic, where it rarely rose above 100 and was often normal at the height of the disease.

A dicrotic pulse was recorded in 13 out of the 89 cases, (14 per cent).

Symptoms of Intestinal Origin.—Constipation was a marked feature in this series. Diarrhoea has been credited to each patient who showed abnormal frequency for the evacuations at any time during the disease, but there were only 21 such cases out of 89, an incidence of 23 per cent. Fifty-one patients, (57 per cent), were constipated and in 13, (14 per cent), the bowel movements were of normal frequency. In 4 cases there was no record. The percentage with diarrhoea is slightly higher than that found by

Digitized by Google

McCrea in his American series (17 per cent) but considerably lower than that met with by Rogers in India, where 63 per cent showed diarrhoea at some period of the disease. Curschmann in Berlin found 73 per cent to have diarrhoea at some stage of the disease.

Since diarrhoea is considered of bad prognostic significance (3) (19) it may be that its low incidence among our patients is related to the low death rate of 4.5 per cent which was met with in this series.

Abdominal pain was noted as present in 13 of the 89 characteristic non-fatal cases, (14 per cent), was absent in 2 and there was no record for the remainder. Tympanites was recorded for 21 patients, (23 per cent), was absent for 7 and for the remaining 61 there was no mention of this symptom. Vomiting at some time during the disease occurred in 13 cases, (14 per cent).

Hemorrhage was noted in 5 instances, 5.6 per cent of the entire group. Also it was the cause of death in one of the fatal cases not included in the series of 89. This percentage corresponds closely with that found by Curschmann in Berlin and Osler in Baltimore, but is much lower than the experience of Rogers, who records hemorrhage in 17 per cent of his Indian series. Perforation was seen only in the fatal cases, occurring 3 times.

Symptoms Referable to the Nervous System.—Headache is recorded in 40 cases, or 45 per cent. Delirium was noted for 10 patients, (11 per cent), stupor or coma for 7, (8 per cent), and subsultus tendinum in 2, (2 per cent). Under this heading may be mentioned the complications occurring in four cases, two having developed post-febrile psychosis, one a multiple neuritis of the lower extremities and the fourth a condition of cardiac and nervous irritability.

Miscellaneous Signs and Symptoms.—Rose spots were noted as present in 26 cases, (29 per cent), absent in 6, (7 per cent), and in the remaining histories there is no mention. The spleen was enlarged in 18 cases (20 per cent), not enlarged in 11 (12 per cent), and in the remaining cases the records are silent on this point. Cough was present in 10 cases and bronchitis is recorded for three.

Urine.—Albumen was present in the urine of 13 patients, (15 per cent) was absent in 19 (21 per cent). Casts were present in

Digitized by Google

8 cases, (9 per cent) and absent in 19 (21 per cent). In the remaining cases there were no records of the urinary examinations.

Complications and Sequelae.—Out of the 89 non-fatal cases the following complications and sequelae were recorded: Malarial fever, twice; catarrhal otitis media, once; phlebitis of the internal saphenous, once; bronchial spirochetosis, twice; multiple neuritis of the lower extremities, once; post-typhoid psychosis, twice; cardiac and nervous irritability, once; intestinal hemorrhage, five times.

Among the fatal cases, Group I. it will be recalled there were 3 cases of perforation and one of hemorrhage.

TYPHOID FEVER AMONG FILIPINOS.

We have performed laboratory tests on 105 Filipinos suspected of having typhoid fever and obtained positive serum reactions in sixty. *Bacillus typhosus* was recovered from the stools of three of these and from the blood of two. Twenty-one of the positive results were obtained from the San Fernando epidemic and no case histories are available. From the remainder of the 60 we received clinical records for 26 patients of whom 1 died with perforation, 1 ran an entirely atypical course, 12 apparently were received in the last week of a classical typhoid attack while the remaining 12 passed through a period of continued fever ranging from 10 to 39 days in length and averaging 29.6.

These last 12 cases, which on clinical grounds alone appeared to be typhoid, are included in our Group IV. considered above, but will be briefly touched on at this point in order to determine if the disease in natives differs from that seen in the white man. All but two of these natives ran a febrile course of over 19 days. The onset was gradual in all instances. Chills were noted for two patients. The temperature chart showed a well-defined fastigium in seven cases and the fever ranged at the height of the disease between 104° and 106° F. Nose bleed occurred in three, rose spots in two, marked abdominal pain in four and tympanites in 7. Diarrhoea was noted in 4, constipation in 5 and there was no record as to bowel movements in 3. As complications hemorrhage occurred in two cases, post-typhoid psychosis in one and bronchial spirochetosis in two.

From a study of these cases it can be said that they did not differ from typical typhoid fever of moderate and severe type as

Digitized by Google

seen among white men in the United States or in the Philippines.

The atypical cases which constituted so large a proportion of the Filipino admissions in the Camp Gregg epidemic and occasionally elsewhere are of special interest because of their probable role in spreading and keeping up infection. We have not had enough of them under observation to make any analysis of their symtomatology profitable. Rogers found such types in 17.8 per cent of his patients in India, this percentage being much lower than was seen in our series. How commonly these atypical cases occur in the general native population is one of the unsolved problems of tropical medicine.

Summing up the clinical aspects, we found that more than a third of the admissions were atypical and that the well-marked cases of typhoid in the Philippines, whether the patients were white or native, differed in no essential respect from the same disease as seen in the United States and Europe. The experience corresponds in general with the findings of Rogers in India. The atypical cases were about equally common in the two races.

RELATION OF BACILLUS TYPHOSUS TO THE SO-CALLED UNDETERMINED FEVERS.

It seems to us that the most important point brought out by the clinical study of the cases is the frequency of occurrence in the Philippines of the short irregular and atypical forms of typhoid fever. Groups II and III constituted 38.7 per cent of the entire 157 cases of typhoid infection. These two classes of mild infections formed 45.6 per cent of the total admissions at Ludlow Barracks and 69.2 per cent of the admissions among the Scouts at Camp Gregg. Without laboratory examinations or the presence of a widespread epidemic, such as prevailed at Ludlow Barracks, few, if any, of these mild enteric fevers would have received a correct diagnosis. This clinical type of infection with *Bacillus typhosus* may account for a considerable part of the so-called undetermined fevers met with in the tropics, the prevalence of which in our army is shown in Tables III and IV. The sanitary importance of detecting such atypical typhoid cases is obvious.

Throughout our analysis we have been on the lookout for cases corresponding with the description of Brill's disease, but have

Digitized by Google

seen none suggesting that condition or the recently described Manchurian typhoid (24).

DIAGNOSIS, PROGNOSIS AND TREATMENT.

In the well-marked cases of typhoid in the Philippines the diagnosis can be made by the usual symptoms and physical signs recognized in temperate climates. In the large group of short atypical fevers diagnosis is impossible without resort to laboratory procedures. The prognosis with favorable facilities for treatment is good, the mortality for the last few years, as shown above, being about 7 per cent and no higher than was seen in the United States. The study of our series suggested nothing new in the direction of treatment. Hydrotherapy was almost universally practiced and drugs were rarely used and only to relieve definite symptoms. The diet in general was liquid and consisted largely of tinned milk.

Part IV. A Study of Recent Typhoid Epidemics in the Philippines.

Many epidemics of typhoid fever have been recorded among troops in the Philippines before this Board began the study of the subject. The outbreaks chronicled below are ones in the investigation of which the Board took a share. The epidemic at San Fernando is of special interest in view of its occurrence in the native population of a town where there was no contact with an American garrison, the adjacent military post of Camp Wallace being occupied by native Scouts.

SAN FERNANDO (UNION) EPIDEMIC.

In July, 1910, we learned that an epidemic was prevailing in San Fernando and a member of the Board (Captain Bloombergh) was sent to investigate. San Fernando has a population of 16,000 and is located on the coast about 150 miles north of Manila. The municpal records show that cholera visited the town in 1908 and is credited with 170 deaths. There are also recorded 34 deaths from intermittent fever, 26 from dysentery and diarrhoea and 9 from meningitis for the same year. In 1909 there are recorded 45 deaths from dysentery and diarrhoea, 12 from intermittent fever and one from meningitis. It is easy to see how typhoid may have been masked by these diagnoses during 1908 and 1909.

Statistics as to the amount of illness prevailing in 1910 were difficult to obtain. A native doctor said there were many cases and a mortality of 50 per cent. An intelligent priest reported much sickness but few

Digitized by Google

deaths. An American teacher stated that out of an average enrollment of 392 children there has been 28 cases of fever with 1 death.

We obtained blood specimens from 25 persons who admitted having had the fever during the preceding 3 months. Two of these were evidently dysentery and from the remaining 23 we obtained positive Widal reactions in 20. In addition, one of the 18 specimens also agglutinated *Bacillus paratyphosus* "B" while all gave negative reactions with *Bacillus paratyphosus* "A." Thirteen other natives, who furnished no history of fever, gave negative serum reactions with typhoid and paratyphoid bacilli.

Cultures were made from the stools of 4 of the school children ill with a febrile disease and *Bacillus typhosus* was isolated from two. One of these two patients gave a positive Widal reaction and from the other no blood was obtained.

The sister of this last case had died with a disease of similar clinical nature. In one house visited there had been originally 11 occupants of whom two, both children, had recently died with fever. Eight others were sick at the same time, the mother alone escaping. Of the 8 who had been ill 5 gave positive Widal reactions. These two instances show how the disease may have spread by contact, but it must not be forgotten that in San Fernando, as in other Filipino towns, there is excellent opportunity for the spread of the disease by any or all of the recognized methods of infection.

Blood smears from 42 natives, including all of the cases recorded above as giving positive typhoid findings, were examined for latent malaria and no organisms were discovered.

FORT MILLS (CORREGIDOR) EPIDEMIC.

Three cases occurred on this island in December, 1910, and January, 1911. The first case was the wife of a white civilian employe. The next two cases were white soldiers. Two other soldiers suffering from continued fever also gave positive Widal reactions combined with negative cultural results from blood and stools. As these two men had received antityphoid vaccination it is uncertain what the cause of their fever may have been. Several other soldiers with fever gave negative Widal reactions. A fourth case of undoubted typhoid in a native woman occurred in May, 1911.

The source of the infection in the above instances remains undetermined. The sanitary conditions on Corrigedor were not favorable at that time because of the crowding and the great amount of construction going on. There was a large American garrison, a smaller force of Filipino troops and several thousand Bilibid convicts and native laborers engaged in work on the island. In addition many of the laborers had their families living in a village on Corregidor. The water supply was unsatisfactory in quantity and quality and the disposal of excreta was for the most part by dry earth closets or even more primitive methods.

Digitized by Google

CUARTEL DE ESPAÑA (MANILA) EPIDEMIC.

Nine cases occurred in company "M" of the 26th Infantry, all being taken sick within one week. No cases occurred in any of the 7 other companies at the post. The sanitary conditions were very good at this station and were the same for all the companies. The cook for company "M" had a short fever and gave a positive Widal reaction. It was learned that two years before in the United States he had had a fever of a month's duration followed by a relapse also lasting one month. It was thought that he might be a carrier and responsible for the outbreak in his company. However, efforts to demonstrate the bacillus in his stools and urine were unsuccessful. The men attacked were not closely associated with each other in barracks so it seems probable that contact infection was not a factor in this epidemic.

LUDLOW BARRACKS (PARANG) EPIDEMIC.

During the years 1909 and 1910 a very extensive epidemic occurred at this post, there having been 80* admissions to hospital in a period of 6 months beginning October 1, 1909. The official population of the post for the period averaged about 850 persons. Two cases diagnosed as typhoid occurred earlier in the year, July and August, but whether these had any bearing on the subsequent epidemic cannot be determined. The admissions by months, including civilians, are as follows:

Table XVII.—Admissions for typhoid fever at Ludlow Barracks, Mindanao.

Month, 1909.	Admissions, number.	Admissions per 1,000.	Mean strength, command.	Month, 1910.	Admissions, number.	Admissions per 1,000.	Mean strength, command.
July.....	1	.....	.....	January	3	3.56	837
August	1	.....	.....	February ...	12	12.15	988
October	47	52.69	892	March.....	11*	12.64*	870
November....	3	3.45	868	April.....	0	.....	.....
December	4	5.51	726	May	0	.....	.....
				Total.....	82†	.....	.....

*The 23rd Infantry, which formed the garrison at Ludlow Barracks during this epidemic, embarked March 20, 1910, on transport *en route* to San Francisco *via* Manila. At Manila ten suspects were transferred to the Division Hospital. Of these 4 proved to be suffering from typhoid. These should be included in the Parang epidemic, bringing the total number of cases up to 80 in 6 months. These 4 developing on the transport have been included in the 11 admissions for March in Table XVII.

†These figures are based on an examination of the post records and the actual clinical histories. They differ from the figures in the office of the Chief Surgeon, Philippines Division, which showed 4 less cases for October, one less for December, two less for January and two less for March. The differences are due to certain civilians not being included in the official records.

Digitized by Google

At this point it may be of interest to note that the records of the post show that there was a small epidemic of enteric fever at Parang in 1902, the admissions having been as follows:

June, 1; August, 1; October, 4; November, 6; December, 1.

At the time of the occurrence of the 1909-1910 epidemic the sanitary conditions at the station, except for the water supply, were good. The post of Ludlow Barracks is located on an elevated, easily drained site; the grounds were well policed and the barracks and quarters were of modern construction. Excellent water closet and bath fixtures had been installed shortly before the outbreak, the outfall being in the ocean about ¾ of a mile from the post. Flies were not common, this being the rule in the Philippines.

At the time of the occurrence of the October cases the garrison had been stationed at Ludlow Barracks for a period greater than the longest recognized incubation period for typhoid fever, even granting that the early cases had been sick a couple of weeks before the disease was discovered.

Distilled water was supplied for drinking, cooking, cleansing of the teeth and for dishwashing and its use enjoined by orders. There was no reason to think this water was contaminated. For flushing of closets and for bathing the supply was obtained from the Nitwan river, a rapid mountain stream draining a country inhabited by Moros and but little known. The water was piped about the post and in the adjacent town of Parang, which is largely frequented by the soldiers. That this water at times was used for drinking, dishwashing and cleansing of the teeth cannot be gainsaid (4).

The Nitwan river is undoubtedly extensively contaminated with fecal matter (7). It is a custom of the Moros to defecate in running water. That typhoid fever is by no means infrequent among the natives in Mindanao seems certain from the opinions referred to near the beginning of this report and from our own work. The Nitwan water was examined at the times of the two visits made to the post by members of the Board. No typhoid bacilli were isolated from it but its bacterial count was very high and it was extensively infected with the colon bacillus (5) (6). Examination of the dock water, (piped from a spring-fed stream) and of the *Alphonso XIII* spring, which supplied the swimming pool, showed high bacterial counts and the presence of a few colon bacilli.

The town of Parang is a small village immediately adjacent to the post and depending for its support entirely upon the American garrison. A series of serum reactions with *Bacillus typhosus* made by this Board during the epidemic on 84 of the inhabitants of Parang gave the following results:

Digitized by Google

Table XIX.—Widal tests on the inhabitants of Parang, Mindanao.

Race.	Number examined.	Positive reaction.	Negative reaction.	Sick at time of test.
Chinese	8	1	7	4
Japanese	10	6	4	0
Moros	12	1	11	0
Hindoos	1	0	1	0
Filipinos	53	5	48	1
Total	84	13	71	5

The five reported sick were all suffering from a disease clinically typhoid, while two others who gave positive reactions had slight fever but no other symptoms. One of the latter was Japanese and the other a Filipino. A number of these sick persons were Japanese and Filipino prostitutes and their houses were still open to soldiers while the inmates were ill and not in any way isolated (7). The opportunities for contact infections are obvious.

Major Page, who was Surgeon at Ludlow Barracks during October, November and December, in a report dated December 22, 1909, expressed the opinion that the epidemic was water borne, the source of infection being the Nitwan River. He considered that the peculiar grouping of the cases in certain barracks was due to the Nitwan water supply having been first installed in those barracks, shortly before the outbreak. The evidence as to the coincidence of the dates of installing the pipes and the development of the cases in October seemed to us rather conflicting. During the later period of the epidemic, after Major Page's departure, the same peculiar grouping of cases was evident although at that time the water was installed for all the barracks.

The disease continued to occur after Major Page left Ludlow Barracks, flared up in March and April and *then disappeared entirely following the departure of the 23rd Infantry and a very complete and thorough disinfection of the barracks before the new garrison entered them.* This was carried out under the supervision of Major Clayton, who believed the epidemic spread by contact and not by water.

This Board made two investigations of the epidemic, one in the fall of 1909 and the other in the spring of 1910 (5) (6). From all the evidence at hand several months after the disease had entirely disappeared we concluded:

(1) That the Nitwan river was badly contaminated with human excrement and that very probably some of the cases originated from drinking this impure water at a time when it contained *Bacillus typhosus.* There was no positive evidence to show how the first cases originated.

(2) That the spread of the epidemic was due mainly to contact infection, including in this the probabilty of cooks or attendants infecting food while handling it in the kitchens and dining rooms. We based this

Digitized by Google

opinion mainly on the following facts: (a) The vast majority of the cases for the whole period of six months were peculiarly grouped in certain barracks, one group of adjacent organizations having few or no cases while another group of contiguous buildings had many cases. (b) The cases in Parang, where unboiled Nitwan water was probably in very general use for drinking, were all among individuals coming in close personal contact with the troops. (c) No cases occurred among the officers and noncommissioned officers living in separate quarters. (d) Typhoid disappeared from among the troops at Ludlow Barracks following a change in the garrison and rigid disinfection of the buildings. The period of freedom has now been over a year.* (e) There was complete failure to suppress the epidemic by means of stringent measures based on the water-borne theory.

The dates of admission of the cases to hospital largely supports the contact theory, but too much reliance should not be placed on this point since the clinical records indicate that many men had been sick between one and two weeks before going on sick report.

Efforts were made to locate typhoid bacillus carriers but without success.

A more extended discussion of some features of this epidemic can be found in the references (4), (5), (6) and (7). A "spot map" of the post and the dates of admission are on files in the offices of the Surgeon General of the Army and the Chief Surgeon, Philippines Division, under the heading shown in reference (6). The clinical aspects of the Parang epidemic are of considerable interest as possibly showing a rather unusually large percentage of extremely mild cases. The diagnosis in all cases was made as a result of a positive Widal reaction (1-50 in one hour), nearly all of these serum tests having been performed by members of the Board. None of the patients considered had ever received antityphoid vaccination. In several instances the blood, stool or urine cultures were positive for *Bacillus typhosus*. On many soldiers suffering from slight indispositions the Widal reaction was tried with negative results.

Including the July case and the 4 cases detected after the 23rd Infantry left Parang we have clinical records of 81 patients in whom there was a positive Widal reaction. Of these three died, a mortality of 3.7 per cent. One showed at autopsy "congestion and slight ulceration" of Peyer's patches. He apparently died of overwhelming toxaemia about the 17th day of the disease. The second patient died of toxaemia on the 22nd day and at autopsy showed the characteristic intestinal lesions of typhoid. The *Bacillus typhosus* was isolated from the heart blood. The third case died of general peritonitis following perforation of the ileum. Autopsy showed enlarged and ulcerated Peyer's patches.

*Eight months after the epidemic ceased one case of typhoid was admitted to the hospital. The patient was a native. Three months later an American civilian was admitted with typhoid fever, and two months after this another native, the latter coming from a neighboring barrio.

Digitized by Google

Forty-one cases, constituting 50.6 per cent of the whole, show on the chart a continued fever ranging from 16 to 40 days and averaging 26.4 days. The temperature charts of 33 were classed as typical of typhoid, showing a well marked fastigium which averaged 102° F. in 3 cases, 103° F. in 17, 104° F. in 12 and 105° F. in 1.

Diarrhoea was noted in 11, constipation in 21 and regularity of the bowels in 9. Rose spots were recorded in 7 cases and dicrotic pulse in 6. Complications occurred in the shape of multiple peripheral neuritis in one and post-typhoid psychosis, requiring transfer to the United States, in another.

In this group of 41, *Bacillus typhosus* was recovered from the blood of two, the stools of two and the urine of one.

The records of 27 of the cases (constituting 33.3 per cent of the whole) showed temperature curves which resembled the last week or ten days of a typical typhoid chart. In one of these 27 cases *Bacillus typhosus* was isolated from the stool, in another from the urine. It is believed that these patients had been suffering from a mild attack of typhoid fever for periods ranging from 5 to 15 days before admission to hospital.

A third group consisting of 10 cases (12.3 per cent of the whole) presented trivial rises of temperature lasting for a few days and bearing no resemblance to the classical typhoid fever chart. All showed clear cut serum reactions and from the stools of 3 the *Bacillus typhosus* was recovered. There is no reasonable doubt that all were suffering from extremely mild and atypical typhoid fever or else were just at the end of an attack which had never caused them to be excused from duty. Their actual appearance on sick report was not due to their own volition, but was the result of the general taking of temperatures and admission to hospital of all who showed any degree of fever.

Of the 81 cases considered above 3 were natives and the remainder Americans. The total number considered (81) does not include the 5 cases in the adjacent town of Parang and referred to in Table XIX.

Taken as a whole the epidemic was characterized by constipation, absence of hemorrhage, very slow pulse, rarely over 100 and often normal, by a large ratio of very mild or ambulatory cases and by a low mortality, 3.7 per cent. An analysis of the October epidemic was made by Lieut. Charles T. Dulin and of the whole period of the epidemic by Lieut. Clarence E. Fronk.

CAMP ELDRIDGE (LOS BAÑOS) EPIDEMIC.

Eleven cases of typhoid fever occurred at this post during July and August, 1909, the garrison consisting of 4 companies of the 7th Infantry. The cases were quite evenly distributed. One patient was a commissioned officer and of the 10 enlisted patients 4 came from "C" company, 3 from "A" company, 2 from "B" company and 1 from "D" company.

The post of Los Baños is situated on an elevated, well-drained site.

Digitized by Google

The earth closet system was in use at the time of the epidemic. The water for drinking purposes was boiled. That for bathing is derived from a stream the intake being a considerable distance up on Mt. Makiling. The possibility of its having been infected cannot be excluded. An effort made at this laboratory to find carriers among the company cooks or elsewhere in the command was unsuccessful. The garrison left Fort Wayne, near Detroit, (where typhoid is said to have been common) on April 30, 1909, and arrived at Camp Eldridge on June 6, 1909. The first case of typhoid fever entered hospital July 3, 1909. A study of his chart and of the charts of the next two cases, admitted July 9th and 10th, respectively, would indicate that the patients came into the hospital in the first few days of their typhoid course. It appears, therefore, that the infection of these first cases was gained after the troops arrived at Camp Eldridge. As far as could be learned there was no typhoid fever in the adjacent town of Los Baños, except for the case of a soldier who, while on furlough, had been living at the hotels in Los Baños and developed typhoid there. He subsequently died of the disease in the Division Hospital (8). The ice and bottled waters produced by a commercial company in Los Baños fell under suspicion, since it was in use among the soldiers. Samples of the bottled products examined by the Bureau of Health in Manila were negative for the bacillus of Eberth.

It was found impossible to locate the origin of the epidemic. Its manner of spread was not definitely determined, but was very probably due to flies which were numerous at that time and may have carried the organism from the dry earth closets infected by the first case.

Of the 11 cases reported as typhoid, 10 presented temperature charts with febrile periods ranging from 12 to 41 days and averaging 23.1 days. All but one of these showed a well marked fastigium. From the blood of 4 the *Bacillus typhosus* was isolated, four others gave positive Widal reactions and in the two remaining cases no Widal reaction was performed, but the diagnosis was clear on clinical grounds.

The eleventh case diagnosed as typhoid is of a doubtful nature. The temperature curve is not characteristic and one Widal reaction and one blood culture, both done on the 11th day, were negative.

A large number of mild cases of fever occurring in the command at the time were negative for Widal reaction and blood culture at the Laboratory of the Board for the Study of Tropical Diseases. As dengue was epidemic in the post at the same time as the typhoid outbreak the number of cases requiring laboratory observations was considerable.

The progress of the disease in this epidemic was characterized by lassitude, headache, constipation, rose spots, enlarged spleen and dicrotic pulse. The charts indicate that constipation existed in 7 patients, regularity in 1 and abnormal frequency of bowel movement in two. Abdominal pain was marked in one case, delirium in another and intestinal hemorrhage in two. There were no deaths.

Digitized by Google

CAMP GREGG (BAYAMBANG) EPIDEMIC.

Fifteen cases of typhoid are recorded among the Philippine (Native) Scouts at this post between November 26, 1909, and April 5, 1910. Thirteen of these gave positive Widal reactions at the laboratory of the Board. As the other two had an irregular fever and as Widal and stool cultures were negative we have excluded them from consideration.

This epidemic is of much interest because the entire command at this post is native with the exception of the commissioned officers and a half dozen noncommissioned staff officers.

The post is built on a slight elevation, located in a broad, poorly drained plain. The region is very malarious. The barracks are in rather poor condition. Feces are disposed of by the dry earth closet system. Flies are not common. Drinking water is distilled. Water for bathing is piped over the post and drawn from the Agno river, a muddy and badly contaminated stream. There is no doubt that the Scouts frequently drink this water in the post and in the town of Bayambang, which adjoins the post. Lieut. Huber, in his report of the epidemic, expresses the opinion that typhoid is constantly present in Bayambang and states that he has seen several cases in the families of Scouts living in the town.

The clinical histories of these cases are very meager, but the charts show some points of interest. Two of the cases are classed as typical typhoid, the febrile course being at least 20 days in one and 19 in the other. There was a well marked fastigium. One case had a relapse of 12 days' duration and the other a post-typhoid psychosis. Two others might have been diagnosed clinically as very mild typhoid, the febrile period after entry to hospital being between 10 and 12 days and the temperature curve not typical. The 9 remaining cases showed fever for a week or ten days and may well have been either entirely atypical or the last portion of a typical typhoid chart.

The stools during convalescence were negative in these 13 cases and cultures from small quantities of blood taken from several in the earlier part of the disease were negative. The specific diagnosis of typhoid rests solely on positive agglutination reactions with *Bacillus typhosus*. We might question the certainty of this method of diagnosis in the atypical cases were it not for the following points: (a) Two of the cases gave first a negative reaction followed a few days later by a positive one. (b) Many Scouts at the post during the same period who were suffering from mild fevers reacted negatively. (c) We have done Widals on several hundred healthy natives and only rarely have obtained a positive reaction.

The writer as representative of the Board at the present time wishes to acknowledge his obligations to the many medical officers at the Division Hospital and throughout the Philippine Islands who have furnished the materials for the laboratory studies

Digitized by Google

and the clinical records for the analysis, and also to former members of the Board who did a large part of the laboratory examinations on which this report is based.

Part V. Conclusions.

(1) Typhoid is a widely scattered and common disease in the Philippines; its incidence in Manila is above the average rate for the United States and is exceeded by only a few of the worst American cities; the average admission rate among American soldiers in the Philippines exceeds that for the troops serving in the United States; medical officers from many regions report its frequent occurrence among the Filipinos.

(2) The statistics from the Filipino (Native) Scouts show a much lower typhoid rate than for white troops, possibly due to failure to diagnose the atypical cases.

(3) Widal reactions performed on the blood of 591 healthy Filipinos suggest a comparatively recent attack of typhoid in about 6 per cent of adults, but do not indicate that the disease is prevalent in childhood.

(4) Many epidemics have occurred among soldiers in the Philippines and three outbreaks among natives have been studied. Epidemics of great severity among the Filipinos are either rare or unnoticed.

(5) The occurrence of the disease in the Philippine Islands is quite evenly distributed throughout the year. The incidence is least in the second quarter.

(6) The appearance of the Widal reaction in typhoid fever in the Philippines is not as a rule delayed.

(7) Paratyphoid organisms are occasionally isolated in the Philippines.

(8) The leucocyte count in typhoid remains normal for whites and is slightly increased for natives. The differential count is normal for both races.

(9) The mortality for white troops in the Philippine Islands during the last five years has been no higher than at home. It appears somewhat higher for Filipinos but this may be due to failure to diagnose all the mild cases.

(10) More than a third of the cases of enteric fever, whether among Americans or Filipinos, are entirely atypical and cannot be diagnosed without laboratory methods.

Digitized by Google

(11) Over half of the cases occurring in the Philippine Islands can be diagnosed clinically and differ in no essential particular from typhoid fever as seen at home. This is true for both American and Filipino cases.

(12) Much work still needs to be done among the natives to estimate the actual amount of mild and atypical typhoid which is occurring and to determine why extensive and destructive epidemics are not more often seen.

REFERENCES.

(1) Manson, P., Tropical Diseases, Ed. 1907, page 331.
(2) Castellani, A. and Chalmers, A. J., Tropical Diseases, Ed. 1910, page 800.
(3) Rogers, L., Fevers in the Tropics, Ed. 1910, pages 110 to 148.
(4) Page, Henry, Report of Typhoid Epidemic at Post of Parang. Report made to Surgeon General, U. S. Army, December 22, 1909.
(5) Phalen, J. M. and Kilbourne, E. D., Work of Board for the Study of Tropical Diseases. The Military Surgeon, July, 1910, XXVII, 1, page 56.
(6) Chamberlain, W. P., Bloombergh, H. D. and Kilbourne, E. D., Report of Board for the Study of Tropical Diseases. The Military Surgeon, November, 1910, XXVII, 5, page 529.
(7) Clayton, Jere B., Report as to Cause of Epidemic of Typhoid Fever at Ludlow Barracks. Made to Chief Surgeon, Department of Mindanao, April 13, 1910.
(8) Phalen, J. M. and Kilbourne, E. D., Report of Board for the Study of Tropical Diseases. Made to Surgeon General, U. S. Army, September 30, 1909.
(9) Heiser, V. G., Unsolved Health Problems Peculiar to the Philippines. Phil. Jour. of Science, Sect. B, July, 1910, V, 2, page 171.
(10) Jackson, T. W., The Clinical Side of Disease in the Philippine Islands. Med. Record, September 25, 1910, LXXVI, 13, page 511.
(11) Nichols, H. J., The Simple and Double Continued Fevers in the Philippines. The Military Surgeon, May, 1908, XXII, 5, page 365.
(12) Bruns, E. H., Notes on Epidemic of Typhoid Fever at Iloilo. Same, page 369.
(13) Nichols, H. J., Medical Survey of Taytay. Phil. Jour. of Science, Sect. B, August, 1909, IV, 4, page 281.
(14) Huber, E. G., Report on Typhoid at Camp Gregg. Made to Chief Surgeon, Philippines Division.
(15) LaGarde, L. A., Comments on Epidemic Typhoid with Especial Reference to Contact Infection. The Military Surgeon, May, 1908, XXII, 5, page 373.
(16) Report Surgeon General, U. S. Army, Fiscal year 1902, page 56.

Digitized by Google

(17) Report Surgeon General, U. S. Army, Fiscal year 1903, pages 46, 142 and 151.
(18) Report Surgeon General, U. S. Army, Fiscal year 1904, page 70.
(19) Osler, W., Modern Medicine, 1907, Vol. II, pages 70 to 230.
(20) Hiss, P. H. and Zinsser, H., Text-book of Bacteriology, 1910, page 401.
(21) Strong, R. P., John Hopkins Bulletin, 1902.
(22) Mortality Statistics. Reports of Census Office, 1908, page 32.
(23) Havard, V., Military Hygiene, Ed. 1909, page 22.
(24) Editorial, "Manchurian Typhoid" and Brill's Disease. Med. Record, March 25, 1911, 79, 12, page 535.

Digitized by Google

CURRENT LITERATURE

Titles marked with an asterisk (*) are abstracted below.

BELGIUM.

Archives Médicales Belges,
October, 1911.

1 Bronchoscopie. M. Molitor.

C. F. CRAIG.

FRANCE.

Archives de Médecine et de Pharmacie Militaires,
October, 1911.

2 Concerning Delirium of Interpretation among Soldiers under Treatment at the Saint Pierre Asylum, Marseilles. Lanteaume.
3 Rapid Analysis of Water in Campaigns. Fromont.
4 Analysis of Medical Statistics in the English Army for 1909. Grysez.

November, 1911.

5* On the Optional Use of Anti-typhoid Vaccination in the Army. Landouzy.
6 Addison's Disease with Predominating Abdominal Symptoms. Chameroy.
7* On Vaccination by Igni-puncture. De Libressart.
8 A Case of Poisoning by the Root of Veratrum Album. Rothea and Rouyer.
9 Medical Statistics of the Russian Army in 1907 and 1908. Fromont.

5. **Anti-typhoid Vaccination.**—A strong argument for the adoption of anti-typhoid vaccination in the French Army, based chiefly on the success obtained in the German, English and American Armies.

7. **Vaccination by Igni-puncture.**—The author says that in 1904 the percentage of takes in the army was 40, while in 1908 it was 19, and quotes Nöel to the effect that this drop was due to the neutralization of the vaccine by disinfectants used in preparation of the arm. The author vaccinated 2,000 recruits by igni-puncture with success in 40%; among 200 controls vaccinated with the same lymph in the ordinary way the percentage was 19. The

Digitized by Google

arm is washed with sterile water, wiped dry and lightly touched in three places with a cautery of dull red colour. The vaccine is applied immediately with glass rod. There is no blood and no secondary infection.

H. J. NICHOLS.

Archives de Médecine et Pharmacie Navales,
November, 1911.

10 Official Report on the Organization of the Sanitary Service, and its Duties in the Japanese Navy (Continued). M. le Dr. Chemin.
11 Cruise in the South Atlantic. Extract from Report of General Inspection (1910) of M. le Dr. Valence
12 Medical Report at the End of the Cruise of the Goeland. M. le Dr. Jean.
13 Succinct Study on the Nature and Character of Diseases Observed at Tonquin, China. M. le Dr. LePage.
14 Vaginal Cysts. Essay on their Etiological Classification, Based on the Anatomical Character. M. le Dr. Gachet.
15 Modifications of the Ministerial Instructions, 4th July, 1911, Relative to Service of Medical Corps of the Navy.

J. C. WISE.

Bulletin de L'Académie de Médicine,
October 10th, 1911.

16 Salvarsan in Syphilis. Report of a Fatal Case. M. Hallopeau.
17* Arteriosclerosis of Heart and Aorta is Often Due to Syphilis. C. Fiessinger.
18 General Spinal Anaesthesia with Strychnin-Stovaine. T. Jonnesco.

17. **Arteriosclerosis of Heart and Aorta is Often Due to Syphilis.** —In the experience of Fiessinger diseases of the heart and aorta are often due to syphilis. Thus of 37 casese of aortic insufficiency, 28 gave a history of syphilis, and the same history was obtained in 4 of 5 cases of bradycardia; in all 6 cases of aneurism examined by him; and in 2 of 3 patients with arythmia. In a total of 92 cases of heart disease, no less than 54 admitted a history of syphilis, although, in some of them, only after a positive Wassermann reaction had been obtained. He regards the Wassermann test of the greatest value in differentiating these cases from heart lesions due to other causes, and states that a positive Wassermann often secures a positive history in a case which before the test refused to acknowledge infection. Many of these cases, according to the author, recover under specific treatment.

Digitized by Google

October 17th, 1911.

19* The Result of 168 Operations for Gastric Cancer. M. Ed Schwartz, report on Dr. Temoin's results.
20 Clinical Researches upon Indirect Gastroscopy. M. Roger.
21 Hereditary Transmission of Experimental Tuberculosis. M. L. Landouzy and M. L. Laederich.

19. **Gastric Cancer.**—During the last eleven years Temoin has resected the stomach for gastric cancer in 168 cases, with successful results in 92.3 per cent. The cases were selected ones, in that Temoin refuses to operate upon patients in whom the cancer is not in the pyloric region, for if situated elsewhere recurrence soon follows or the disease becomes generalized. The symptoms upon which he relies in distinguishing pyloric cancer from cancer elsewhere in the stomach, are the emaciation, which occurs early, but with no loss of appetite or strength. If the cancer is not at the pylorus there is adversion to food, but the flesh is retained. Of the 119 patients which survived the operation, 19 are still living from 5 to 13 years after operation, while 28 are still living from 2 to 4 years after operation.

C. F. CRAIG.

Le Caducée,
November 4, 1911.

22 Epidemiology and Prophylaxis of Cerebro-spinal Meningitis in the Army. Prof. Rouget of the Val de Grace.
23 Schools of Aviation and Their Need of Medical Officers.
24* The Sanitary Status of the French Troops in Morocco.
25* The Bilom-bara in Madagascar.

November 18, 1911.

26 Historical Sketch of the French Medical Corps. Medical Inspector Schneider.
27 Chronic Appendicitis in the Military Service. Surgeon-Major Jules Meyer.
28 Legislation Concerning the Hygiene of Meat.
29 Sketch of the Medical Congress of Lyons.
30* Rachicentesis in Sunstroke.
31 A New Cardiac Affection Due to Overtraining.

24. **The Sanitary Status of the French Troops in Morocco.**—Dis-

Digitized by Google

quieting rumors have lately been heard concerning the sanitary status of the troops in Morocco, and appear the more probable from the suspicious silence maintained by the government. In the *Dépêche,* a journal of high authority in southern France, are found the following statements: In none of our colonial expeditions have our troops been decimated as they are in Morocco. When correct statistics are published it will be seen that our losses much exceed those of the Madagascar campaign (1895), itself so murderous. Lately the average of daily deaths was 13 to 15. Overwhelmed by typhoid fever, dysentery, malaria and typhus, our troops are being terribly handicapped. One-fourth of the expeditionary corps is dead or has been repatriated. Each transport carries to Algiers or Marseilles 200 or 300 patients or convalescents and the hospitals are always full. The Casablanca hospital, which contained 317 sick and wounded last May, now contains 900 (including some 200 typhoid cases), without counting 196 cared for in the camp field hospital. The causes are several: exhausting work under a tropical sun and all sorts of hardships and privations. Thus the flour ration is issued in kind and each man disposes of it as best he can. The water is mostly very bad and no systematic effort has been made for its purification. The medical officers are highly praised for their devotion to duty and their ingenuity in solving impossible problems, but supplies and appliances appear to have been wofully deficient.

25. **The Bilom-bara in Madagascar.**—This is a choreiform hysterical affection prevailing in epidemic outbreaks, chiefly among women and children, at the time of the rice harvest. Its remarkable feature is that it is mostly spread by suggestion, at the bidding of designing persons who feign to be under its spell and, assuming an inspired air, keep up a high degree of excitement and exaltation among the susceptible natives, until they persuade many of them that they are affected, and make them join the crowd of their victims. Strict administrative measures prohibiting large and noisy gatherings have done much to put an end to this singular malady.

30. **Rachicentesis in Sunstroke.**—A very interesting observation was lately published in the *Gazette des Hopitaux.* A man, 30 years

Digitized by Google

old, was picked up from the street, the victim of sunstroke, and brought to the hospital La Charité in a state of absolute coma. A lumbar puncture was at once performed and 25 c. c. of spinal fluid evacuated. The patient promptly revived and in a few minutes so completely recovered that he wantd to leave the hospital. He was kept until the next morning, being then in perfectly normal condition. This observation tends to prove that there is in insolation an intense congestion and hypertension of the meninges which is at once relieved by rachicentesis. V. HAVARD.

GERMANY.

Deutsche Militärärztliche Zeitschrift,

October 5, 1911.

32 Prevention and Control of Bleeding in Surgery. Wolf.
33* Wound Dressing with Tincture of Iodine and Gum Mastic. Haist.
34 The Use of Tentage and Spades in the Sanitary Service of Campaigns. Hellwig.

October 20, 1911.

35 Critical Remarks on the Diagnosis of Congenital Feeble Mindedness. Weyert.
36* The Dysentery Epidemic at Metz in Summer of 1910. Boehncke.

November 5, 1911.

37 The Relation between Diseases of the Nose and Eye. Dannehl.
38 Study of the Value of Pignet's Method. Seyffarth.
39 The Conservative Treatment of Chronic Middle Ear Disease and its Consequences, with Especial Reference to the Question of Pensions. Brunzlow.
40 Military Medicine in the Historical Section of the International Hygiene Exhibition in Dresden. Haberling.

November 20, 1911.

41 Education and the Military Service Schuppius.
42 Education and the Military Service. Stier.
43 Radium. Scholz.
44 An Albumin Test Suitable for Use in the Medical Service. Zwicke.

33. **Wound Dressing with Tincture of Iodine and Gum Mastic.**—Haist compares the use of iodine and gum in dressing wounds and recommends combining them. Tincture of iodine as a disinfectant of the skin was proposed by Grossich, 1908; Grunert, 1910, recom-

Digitized by Google

mended it for wounds. Tincture of iodine acts by penetrating into the skin and killing bacteria. A gum dressing was used by V. Öttingen in the Russo-Japanese War. The area around a wound was painted with a liquid mucilage which served to keep the bacteria away from the wound. Haist has used a combination of these two methods for dressing operative and accidental wounds and recommends it for use in military practice.

36. **Dysentery Epidemic.**—In 1910 among the troops at Metz occurred two simultaneous dysentery epidemics—one due to the Shiga bacillus and the other to the Y type. 523 persons in the military service were found infected in 9,980 examinations; 210 were sick with dysentery, 147 had some symptoms, and 135 were bacillus carriers. There were no deaths. The Shiga epidemic was apparently a contact epidemic; the Y type could not be entirely explained. The civil population has had epidemics for years, one in 1903, 70 cases of Shiga type, was worked out by Conradi. Cases were released after three negative examinations. Some cases carried the bacilli as long as six weeks. The treatment was symptomatic. Anti-dysenteric serum did not prove of value.

H. J. NICHOLS.

GREAT BRITAIN.

The Indian Medical Gazette,
November, 1911.

45 The Andamans; the Prevalence of Malaria. Major J. M. Woolley, I. M. S.
46 Some Notes on Operations Performed for Suppuration in the Pelvis. Major C. C. Barry, I. M. S.
47 Subluxation of the Penis. Major Norman Rainier, M. R. C. P., D. Ph., I. M. S.
48 Thanatophidia. Mil. Asst. Surgeon A. Bayley deCastro.
49* A Few Notes on the Nastin Treatment of Leprosy. Premananda Das.
50 Case of General Paralysis. Major A. Cochrane, F. R. C. S., I. M S.
51* Cases of Fibroma Molluscum. C. Rockasawmi Chetti.

49. **Nastin Treatment of Leprosy.**—The author reports the use of the Nastin treatment in two cases of leprosy. One was a case of the tubercular and the other of the anaesthetic type. The beneficial effect produced by the second injection in the tubercular case was very marked, inflammatory softening, dissolution and final

Digitized by Google

disappearance of the leprous modules occurred in those scattered over the buttocks, thigh, arms, and back. The other case showed no appreciable improvement in the symptoms or local lesions.

51. **Fibroma Molluscum.**—The author reports a case of Fibroma Molluscum in a Burmese woman aged 38. There were numerous small tumors all over her body and one, attached to the periosteum of the occipital bone, weighed 16 lbs. 10 ozs. The tumor was fibrous and tubular for about five inches from the attachment. The rest of it was firm and hard. It extended from the point of attachment to the hips. She was married and had two children; one five years old and the other two.

A. G. LOVE.

Journal of the Royal Army Medical Corps,
November, 1911.

52 The Work of Divisional Medical Units in the Field. Colonel T. P. Woodhouse.
53* Quinine as a Malarial Prophylactic; a Criticism. Captain P. S. Lelean, R. A. M. C.
54 Pathology and Clinical Medicine. Major W. S. Harrison, R. A. M. C.
55* Some Recent Facts as to Enteric Inoculation in India. Colonel R. H. Firth, R. A. M. C.

53. **Quinine as a Malarial Prophylactic; a Criticism.**—The author states that there are few questions of tropical preventive medicine of more practical importance than that of the value of quinine in malarial prophylaxis. The importance of this question is enhanced by the tendency on the part of some authorities to rely upon this method of prevention to the exclusion or diminution of efforts directed towards reducing mosquito prevalence. This policy appears in India to be due largely to a somewhat enthusiastic representation of the success of quinine prophylaxis in reducing the malarial incidence upon certain jail populations. One such representation has been circulated by the civil authorities in pamphlet form and contains this summary of the views of its responsible medical author: "Take quinine regularly and one is absolutely malarial proof; neither mosquito campaigns nor mosquito nets nor any other wonderful contrivance or device to deal with these insects is required." Such a dictum must be seriously consid-

Digitized by Google

ered when cited by a non-expert administration as justifying the adoption of a policy so ineffective as to be ultimately as costly as it is initially cheap. The author carefully considers the jail statistics for India and Burmah. His arguments that the improvement is more apparent than real are convincing, and he states that such improvement as has occurred is due to improvements in the general hygienic conditions of the jails, reduction of the mosquito-breeding-places which affect the admission and death rates equally, while better housing and food further have reduced both the total and the case mortalities. So far as the military statistics are concerned, quinine prophylaxis has not only failed to justify its ambitious claims of rendering persons "absolutely malarial proof" but is very hard put to it for ground which will even justify its existence. In conclusion the author says:

"In submitting this criticism it is not suggested that quinine prophylaxis, if properly safeguarded, has no value under any circumstances; but it is essential that a protest be made against the one-sided view, that in the wholesale administraion of prophylactic quinine we have a simple and royal road to malaria prevention warranting the withdrawal or omission of all other measures. In the light of the foregoing data, no more dangerous doctrine than this could be advocated, yet its advocacy by their medical advisers has been seized upon by the civil administration as an argument for abandoning more radical measures. It is hoped that this critical analysis of official statistics may draw attention to a most important matter, and enable some of the facts concerning it to be seen in their proper perspective."

55. **Enteric Inoculation.**—Colonel Firth gives the following facts in regard to enteric inoculations for the first six months of 1911:

"In that period we had, in all India, 112 cases of enterica, with 6 deaths among the protected men, and 45 cases with 4 deaths among the non-protected. The protected population we know to have been 63,624 persons, and the non-protected population to have been 8,481 persons. From these data, we find the case incidence per 1,000 among the protected to be 1.7 and among the non-protected to be 5.3. If we take the mortality and express it as per million, then the ratio for the protected is 94, and for the non-protected it is 471. That is to say, the incidence of enterica for

Digitized by Google

the half-year was roughly three times as great among the non-protected as among the protected, while the mortality was roughly five times as great among the non-protected as among the protected. These figures are as encouraging as they are interesting, and may be of use to those engaged in giving addresses to men on the importance and need of submission to the procedure of inoculation." ALBERT G. LOVE.

Public Health,
October, **1911.**

56 Notes on Anthrax. J. S. Tew.
57* Onchocerciasis in Imported Meat. Herbert Williams.
58 Some Points Concerning School Clinics. Joseph Cates.
59 The Portsmouth Municipal Tuberculin Dispensary. A. Mearns Fraser.
60 An Account of the Isolation Chambers Recently Provided at the Eastern Hospital. E. W. Godall.
61 The Future of the School Medical Inspector. Meredith Young.
62 Sanatorium Treatment in Birmingham. John Robertson.
63 Alcohol in Western Australia. James W. Hope.
64 Provision of Public Conveniences. C. Killick Millard.
65 The Incubation Period in Scarlet Fever. Sidney Davies.
66 Child Life. James W. Hope.

57. **Onchocerciasis in Imported Meat.**—Williams describes a new disease of meat, of parasitic nature, called *Onchocerciasis.* In meat imported into England from Australia round, yellowish masses were frequently noted, which, upon examination, were found to contain a parasitic worm known as *Spiroptera reticulata.* Of 4,617 hind-quarters examined, 2,839, or 61.4 per cent, were found infected, and investigations were at once instituted to determine whether the parasite was dangerous to man. Drs. MacFadden and Leiper have reported upon their investigations as follows:

1. The parasitic nodules in Australian beef are, without exception, due to the presence of long, thread-like worms of the genus *Onchocerca.*

2. The diseased condition, *Onchocerciasis,* is not peculiar to Australian cattle, but occurs also in other animals, and in various parts of the world, including the United States of America.

3. The parasites belong to a group of worms that require to be taken up by a biting insect, and to undergo a certain degree of development therein before they can be transmitted to another warm-blooded animal.

Digitized by Google

4. The worms and their young do not appear to be capable of surviving for more than a few hours the death of the cattle. No evidence of vitality of the worm or its embryo has been met with in the case of Australian beef reaching this country.

5. From (3) and (4) above, it follows that the direct development of the parasite in man as a result of eating the affected meat is impossible.

6. The nodules are the product of changes taking place in the tissues as a result of some acrid toxin excreted by the worms. In my opinion their presence in meat intended for human consumption is undesirable for this reason.

These results are reported because Australian beef is largely used in the Philippines, and, while to our knowledge, this infection has not been reported in such beef, it must occur, and therefore the investigations given above may prove of service in the identification of the disease. C. F. CRAIG.

ITALY.

Annali di Medicina Navale e Coloniale,

June, 1911.

67 Syphilitic Lesions of the Auricle. G. Salomone.
68 Contribution to the Knowledge of Chronic Inflammation and Tumors of the Male Breast. E. Vaccari.
69 Reports on Italian Workmen Injured in Germania. E. Fossataro.
70 Epidemic of Influenza on Board the "Regina Elena."
71 International Conference on the Plague at Mukden. L. Di Giura.

July-August, 1911.

72 Morbidity among the Pupils of the Royal Naval Academy in 27 Years. E. Curcio.
73 Contribution to the Pathology and Cure of Popliteal Aneurysm. E. Fossataro.
74 Treatment of Suppurating Adenitis with Resorcin. Fiorito.
75 Practical Contribution to the Method of Skin Sterilization by Tincture of Iodine. E. Del Vecchio.
76 Virulence and Toxicity of Some Micro-organisms in Media Containing Lecithin. G. Conte.
77 Case Histories of Some Traumatic Lesions. E. Fossataro.
78 A Case of Conjunctival Syphiloma. A. Giannone.
79 A Syringomyelic Lesion Due to Trauma. G. Mola.

September, 1911.

80 Changes in the Hearing Apparatus Due to the Action of Compressed Air. L. T. Cipollone.

Digitized by Google

81 The New Method Used in our Navy of Immersing Divers. V. G. Repetti.

82 Treatment of Burns. F. Rho.

W. D. McCaw.

RUSSIA.

Morskoj Wrach,
July, 1911.

83* The Tuberculosis Problem in the Russian Navy. K. N. Zinowjew.

84* Measures for the Prevention of Venereal Diseases on Naval Vessels. E. Jablonski.

85* Ventilation in Modern Battleships. Naval Surgeon Sorre. Abstract from the English by N. S. Awgustowski.

86 Canned Meat Factory and Mill of the Naval Administration in Rochefort. A. D. Ozerow.

83. **The Tuberculosis Problem in the Russian Navy.**—Of interest to American naval medical officers will be the manner in which the Russian government, considered autocratic and absolute by the majority of non-Russians, seeks to obtain information before adopting definite sanitary measures. In the May issue of this magazine vide THE MILITARY SURGEON, November, 1911, page 534) the author published an article under the same title. The article was not abstracted because it referred to the appointment of a special commission to investigate the ever-important problem of the struggle with tuberculosis. The commission sent an interrogatory circular to the societies of naval surgeons at St. Petersburg, Cronstadt, Port Alexander III, Sweaborg, Sebastopol, Port Nicholas and Vladivostock, all of which societies submitted their ideas. These considered such problems as: Selection of Recruits, Shore Service, Service on Board, Hospitals, etc. The recommendations made by the diverse organizations, which, though highly scientific, offer nothing startlingly new, are noteworthy for the care with which they have been prepared. No detail has been forgotten. A plea is made by several societies to allow naval surgeons greater supervisional latitude. Even the members of naval bands have not been forgotten. All instruments which come in contact with the mouths of musicians must have the mouthpieces disinfected before being issued from one to another member.

84. **Venereal Prophylaxis in the Fleet.**—The author reviews the

Digitized by Google

tremendous numbers of infections in the past and the measures which have been advocated since 1862. Nov. 2, 1909, begins a new epoch, for on that date the Chief Medical Inspector of the Fleet instructed naval surgeons to have their subordinate personnel administer prophylactic measures to sailors on their return from shore leave. The men were given orders to urinate, and to wash the genitals immediately after coitus. Prophylaxis of the individual consists of dropping a 20% protargol-glycerin solution into the urethra and inunction of the entire penis with a 33% calomel ointment. All men returning for prophylactic treatment were reported on special lists, which, eventually led to complaints, for several married men expressed fears that the "record may reach their consorts. Modifications of registration (omission of the names) had to be introduced. The author found that in spite of lectures, heart-to-heart talks with the men and the distribution of popular brochures on the subject resort to individual prophylaxis was not always had. He arrived to this conclusion in an ingenious way. He talked to the men and learned of the frequency per month of relations with prostitutes. The table obtained is interesting:

1. Total abstainers	5.7%
2. No intercourse while in the service	19.2%
3. Coitus 1 time in 1 month (12 times per annum)	33.2%
4. Coitus 2 times in 1 month (24 times per annum)	9.1%
5. Coitus 3 times in 1 month (36 times per annum)	3.8%
6. Coitus 4 times in 1 month (48 times per annum)	1.9%
7. Coitus 1 time in 2 months (6 times per annum)	14.5%
8. Coitus 1 time in 3 months (4 times per annum)	6.8%
9. Coitus 1 time in 4 months (3 times per annum)	2.9%
10. Coitus 1 time in 6 months (2 times per annum)	2.9%
Average, 17 times per annum	100.0%

By multiplying the number of the single members of his command with 17 there should be a total of 7,072 applications for prophylaxis, but 487 only is the list given on the register. The author has gone a step further and has applied the percentage rates to the diverse branches of the service (seamen, electricians, signalists, machinists, stokers, etc.), and comes to the conclusion that alcoholism is at the bottom of the flagrant neglect of caring for one's safety. The men return drunk and hasten to their cots as soon

Digitized by Google

as possible. The author pleads for the establishment of tea houses, reading rooms, theaters, film shows, and similar methods of diversion and moral influence for sailors visiting shore, especially since the sexual needs of the men has been found by him not at all excessive.

85. **Ventilation in Modern Battleships.**—Those interested in this subject can read the original article in the British Medical Journal, Aug. 20, 1910.

August, 1911.

87 Analysis of Data Obtained in the Examination of Recruits at Port Vladivostok in 1910. M. A. Berger.
88 The Naval Hospital in Yokosuka (Japan). P. S. Gomzjakow.
89 Early Reaction in Roentgenotherapy. L. Pawlowski.

September, 1911.

90 Physical Examination of Young Sailors on the Lineship "Pantelemon" in 1910. P. L. Kurvich.
91 Life on the Transport "Ocean" in 1909. A. Agrafonow.
92 Naval Service in Japan. P. S. Gomzjakow.
93 Fundaments of the Modern Teaching on Primary Carcinoma of the Ovary, with a Description of a Case. Kyshtalow.
94 Two Cases of Myopia, Developed in Adults. Koroljew.
95* Account of Patients Treated in the Venereal Department of the Naval Hospital in Cronstadt During 1910. A. A. Bernard.
96 Account of the Psychiatric Department of the Naval Hospital in Cronstadt for 1910. G. S. Phillippow.

95. **Venereal Patients in the Cronstadt Naval Hospital.**—The greatest part of the report is devoted to "606" discovered by Prof. Ehrlich and his Japanese collaborator, Nata. The fact that the Wassermann reaction remains positive for some time after the injection of arsenobenzol makes the designation: Therapia magna sterilisans, an unmoisted one, in the opinion of Dr. Bernard, who has not seen any startling therapeutic results.

The author notices a diminution of venereal diseases in the port as compared with the year 1909, which he ascribes to the sanitary control of the public prostitutes and to the introduction of prophylactic measures. The greater danger hails from private women of immoral trend. The naval strength on ships and shore of the port

Digitized by Google

was 13,908. The number of patients was 535=31%, of which 11.5% was due to syphilis. G. M. BLECH.

SPAIN.

Revista de Sanidad Militar,
November 1, 1911.

97 Sanitary Statistics of the Spanish Army, 1909. J. Potous.
98 Purification of Air by Ozone. J. Alonso y Pulida.
99 Mechanism of a New Form of Rupture of the Tympanum. A. Ramirez Santalo.
100 A Case of Ataxic Adynamic Pernicious Fever. F. Gil Acebedo.
101 Obituary. D. Pablo Jimenez Benito.
102 Supplement. Roster of the Medical Corps, Nov. 1st, 1911.

November 15, 1911.

103 The Medical Corps in the Campaign of Melilla. Editorial.
104 The Operating Room of the "Brigade Obrera y Topografica."
105 A New Blood Extractor for Sero-diagnosis. Dr. Farreras.

W. D. MCCAW.

Digitized by Google

REVIEWS

THE PRINCIPLES OF SANITARY TACTICS. A Handbook on the Use of Medical Department Detachments and Organizations in Campaign. By Edward Lyman Munson, A. M., M. D., Major, Medical Corps, United States Army; Assistant Commandant, Field Service School for Medical Officers; Senior Instructor, Department Care of Troops, School of the Line and Staff College, Fort Leavenworth, Kansas. Approved by the Surgeon General, U. S. Army. Published with Consent of the War Department. 1911. Agents: U. S. Cavalry Association, Fort Leavenworth, Kansas. Price $1.50.

This is an excellent book which should be in the hands of every medical officer and every line officer as well. As the author states in his preface, little has been previously written in respect to the tactical use of the sanitary service with troops in campaign and there is but a hazy conception on the part of many officers both of the line and medical department of the importance, scope and methods of employment of the latter. This book should do much to correct this unfortunate state of affairs.

Preceding the numerous problems which constitute the body of the book, an introductory section in four chapters describes the organization of the sanitary service with fighting troops, the tactical education of medical officers, the solution and preparation of problems in sanitary tactics and the participation by medical officers in war games, terrain exercises, tactical walks and rides and field maneuvers. While necessarily brief this section covers the subjects of which it treats in a thoroughly satisfactory manner. The first chapter is specially interesting to us as it describes how the present system of sanitary organization and tactics was evolved through the work of Letterman in our own Civil War.

The problems are well conceived and well worked out with a wealth of attention to all details which affect solutions. Moreover, they are so arranged that they constitute a graded course of instruction, leading up from very simple problems with small bodies of troops to the division. Higher units are not discussed nor is the line of communication included. The latter would, of course, hardly be practical within the limits of a book which discusses small bodies in detail as is the case here. The full discus-

Digitized by Google

sion of the sanitary services with small bodies of troops is in fact one of the chief merits of the book. Without question in a study of this character we should begin at the beginning. Moreover, this gives us something tangible. It is most unsatisfactory to speak only in terms of divisions and field armies when practically we never deal with such large and complicated units.

As the author states, his solutions are not the only ones and very possibly other students may reach conclusions which will serve equally well.

On pages 254 and 255 in problem 28 are set down the opinions of the author in respect to the status of the chief surgeon regarding recommendations and orders. It will be noted, he concludes, that practically all his recommendations during an action will be transmuted into orders for him by the Chief of Staff. This may very likely be the accepted practice and as such should, of course, be adopted by author of a book of the character of the one under discussion. There would appear to be some doubt on this point, however, and it is not thought that such a method was contemplated when the present Field Service Regulations were written. While this again is a matter of opinion it is firmly believed that the chief surgeon must be given a great latitude to exercise his own judgment or the best results will not be obtainable. Moreover, it is believed that this would be still more apparent with entire divisions in serious combat when all the sanitary units must be utilized and the duties of the Chief of Staff are so onerous that he can afford to give little attention to the sanitary service. But as previously stated this is a matter of opinion and we may all sincerely congratulate Major Munson on a book which makes a long step in advance for the betterment of the medical department in respect to its true functions.

SERUM DIAGNOSIS OF SYPHILIS AND THE BUTYRIC ACID TEST FOR SYPHILIS. By Hideyo Noguchi, M. D.; M. Sc., Associate Member of the Rockefeller Institute for Medical Research, New York. Second Edition. Octavo of 238 pages. 14 illustrations. Philadelphia and London: J. B. Lippincott Company. Price $2.50.

This work was reviewed and commended in these pages when it appeared in its first edition something more than a year ago.

In the present edition will be found a few alterations and many

Digitized by Google

important additions. It is apparent that the author has kept up with the growth of his subject. Two methods instead of one are now given for performing the complement diviation test for syphilis. While both yield the same results the application of the test is thus widened under various conditions. The author has given specially exhaustive study in order to find a definite quantitative and qualitative standard for a reliable syphilitic antigen. The method of selection and the best method of preservation are fully described. Many new observations are recorded in the chapter dealing with the clinical value of the Wassermann reaction, and the author throughout the book has made use of practically all the literature to date.

LIPPINCOTT'S NEW MEDICAL DICTIONARY. By Henry W. Cattell, A. M. (Laf.), M. D. (U. of P.), Editor of International Clinics, Fellow of the College of Physicians of Philadelphia, etc. Freely Illustrated with Figures in the Text. Second Edition. Octavo of 1,108 pages. Philadelphia and London: J. B. Lippincott Company. Price $5.00.

The present edition of this dictionary is the second within a year from the original date of issue. The first edition proved so popular that the dictionary is undoubtedly well and favorably known to the majority of our readers.

Over five thousand additions and changes have been made in the text of the new edition, seventy-one new illustrations have been added and a number of old ones redrawn, and a few have been discarded as no longer suitable. About five hundred new words have been inserted, many of which appear for the first time in a dictionary. By study of medical literature the latest opinion has been incorporated on matters which have been the object of recent research, such as the atomic weight of elements, Murphy's treatment, pellagra and syphilis.

CLINICAL IMMUNITY AND SERO-DIAGNOSIS. By A. Wolff-Eisner, M. D., Berlin. Translated by 1st Lieut. Ray W. Matson, Medical Reserve Corps, U. S. Army, Portland, Oregon. Revised and Edited with a special introduction by the Author. Price, cloth, $2.00. London: Balliere, Tindall & Cox, 8 Henrietta St., Convent Garden, 1911. American agents: Wm. Wood & Co., Philadelphia.

A very successful and timely presentation of the facts of immunity, serum and vaccine therapy, anaphylaxis in its various

Digitized by Google

manifestations, chemo-therapy, sero-diagnosis and the many allied subjects with their correlations from the standpoint of the clinician. The average practitioner does not have a practical knowledge of these subjects due to the fact that they have for the most part been presented by the laboratory worker from a purely theoretical standpoint. In this work the various theories are discussed and reconciled if possible with special stress upon their practical application. No one can read this volume without obtaining thereby a better working knowledge of pathological processes and sero-diagnosis.

Wolf-Eisner was fortunate in securing so able a translator. Dr. Matson is a former pupil of Wolf-Eisner and a pathologist of some ability, and as such was better able to present the work.

THE PRACTICAL MEDICINE SERIES, COMPRISING TEN VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY. Under the General Editorial Charge of Gustavus P. Head, M. D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School, and Charles L. Mix, A. M., M. D., Professor of Physical Diagnosis in the North-Western University Medical School. Volume VII, Pediatrics. Edited by Isaac A. Abt, M. D., Professor of Pediatrics, Northwestern University Medical School; Attending Physician, Michael Reese Hospital. With the Collaboration of May Michael, M. D. Orthopedic Surgery. Edited by John Ridlon, A. M., M. D., Professor of Orthopedic Surgery, Rush Medical College. With the Collaboration of Charles A. Parker, M. D. Series of 1911. Octavo of 237 pages. Price $1.25. Price of ten volumes, $10.00. The Year Book Publishers, 40 Dearborn Street, Chicago.

This, like the other volumes of this series, is intended to be complete for the year preceding its publication for the subjects of which it treats. The editors have made comments very freely throughout the volume and the abstracts selected gain decidedly from this. As an example of how pertinent the comments of the editors are the following may be cited: S. W. Newmayer, writing on the subject of school hygiene in the Medical Journal, makes broad claims for the school nurse of the future in respect to protecting the public health. The editor states that this will not be until the nurse becomes a closer student of hygiene and sanitation. Merely because one is a nurse certainly does not imply qualifications as an instructor in the principles of sanitation; as a matter of fact, graduation as a physician implies no such thing, though

Digitized by Google

the ordinary physician is doubtless a hundred times better qualified to teach the subject than the ordinary nurse.

TROPICAL HYGIENE FOR ANGLO-INDIANS AND INDIANS. By The Honorable Surgeon General C. P. Lukis, M. D., F. R. C. S., C. S. I., Director General of the Indian Medical Service, late Principal and Professor of Medicine of the Calcutta Medical College, Fellow of the Calcutta University, and Major R. J. Blackham, D. P. H. (Lond.), R. A. M. C., Knight of Grace of the Order of St. John of the Middle Temple, Barrister-at-Law, Kaiser-i-Hind Medallist; Divisional Sanitary Officer, First Division, Indian Army. Calcutta: Thacker, Spink & Co. London: W. Thacker & Co., 2 Creed Lane. 1911. Price, 4s. 6d. net.

The St. John Ambulance Association has for many years taken a leading part in popular instruction in sanitation in Great Britain but, as stated by the authors in the preface, its excellent courses in home hygiene and sanitation are not adapted to a tropical country when instruction of this character is even more essential than in the temperate zone; the present book is intended to supply this want and has been compiled as a manual for the senior certificate in home hygiene of the Association.

The chapter headings are as follows: The communicable diseases of the tropics; malaria, kala azar, and sand-fly fever; air and ventilation in hot climates, water and water-supplies in the tropics; food in hot climates; clothing in the tropics; houses and their surroundings in the tropics; disposal of refuse in hot climates; insects and disease in the tropics; disinfection in the tropics.

Perusal of the book shows a condition of sanitary affairs in India which is strange even to those well acquainted with other tropical countries and in places Indian words crop out in such profusion that one is at a loss for a moment in comprehending the text. For these reasons it would appear that the authors are very right in their statement that a special book on tropical hygiene is required for India.

It is believed that this book should prove of a great deal of value and in the interest of Anglo-Indians and Indians it is to be hoped that it may be widely circulated and studied.

Digitized by Google

EDITORIAL

FROM present indications greater interest is being taken abroad than in this country in the exhibition in connection with the Ninth International Red Cross Conference which will be held in Washington, D. C., from May 7 to 17, 1912.

Our own country, it is true, will participate in this exhibition through the medical departments of our Army and Navy, both of which will get together for this purpose exhibits of their own material which must prove highly creditable. Great interest should be manifested in this part of the exhibition for this is really the first occasion that a large number of persons, especially foreigners, have had an opportunity to see what our Army and Navy are doing in this direction. Our own Red Cross, too, will show by pictures, charts, etc., what it has accomplished since its reorganization in 1905 and if this has been less than in some other countries from some standpoints, on the other hand in certain directions no Red Cross can make a better showing than our own organization. This, then, is not where we are lacking so far as the exhibition is concerned.

Abroad, great interest has already been shown in the Marie Feodorovna Prize Competition and it is safe to predict that as soon as individuals in foreign countries are fully informed of the purpose of the Red Cross to extend the scope of its general exhibition to include all articles pertaining to medical and surgical practice in the field, exhibits under this head will be freely offered. In this connection, it will perhaps be remembered the American Red Cross has announced it is especially anxious to obtain a full exhibit relating to preventive measures in campaign. These articles will be classified as follows: 1, Apparatus for furnishing good water in the field; 2, Field apparatus for the disposal of wastes; 3, Shelters such as portable huts, tents, and the like, for hospital purposes, and 4, Transport apparatus (to prevent the suffering of sick and wounded) exclusive of such apparatus as specified for the Marie Feodorovna Prize Competition. Diplomas of honor will be awarded for exhibits of this character as recommended by the Jury.

Up to the present time, few Americans have announced their in-

Digitized by Google

tention of participating in the Marie Feodorovna Prize Competition and even less interest has been shown in that part of the exhibition which has just been discussed. Of course, on account of the technical nature of the Red Cross exhibition it is hardly to be expected that the public would generally offer exhibits. In the nature of things with us, as in other countries, active participants must in large part be medical officers who alone, generally speaking, have the special knowledge requisite for preparing satisfactory exhibits. Therefore the failure of the Red Cross to receive many applications for space must be ascribed to the apathy of our medical officers.

Possibly, although efforts have been made to inform medical officers in respect to this exhibition, they are not yet fully conversant with the subject. That part of the general exhibition which would interest them as exhibiters has already been discussed and need not be referred to again. The Marie Feodorovna Prize Competition should result in an exhibit which will prove most interesting in many respects. The subjects of the competition for next year are thought to be such as should appeal to every medical officer. The first and the seventh subjects as announced are organization problems. The former, which is "Organization of the methods of evacuation of the wounded on the battlefield, comprising as complete an economy as possible in litter bearers," is certainly one to which all medical officers of our land forces of any length of service must have given serious consideration and the latter "Transport of the wounded between war vessels, hospital ships, and the coast" must equally have interested our naval medical officers. These might well be examination questions.

Subject number 2, "Portable (Surgeon's) washstands for war," contemplates, it is understood, an apparatus which is portable and which may be set up anywhere to enable a surgeon to disinfect his hands by washing them.

The third subject requires the preparation of dressings in such a form that they will be readily available for use under field conditions in battle. This is regarded as a most important matter. Rolls of gauze, cotton and roller bandages prepared in the usual manner do not fulfil this need very well as they require too much handling with very probably dirty hands when a dressing is to be applied at the front.

Subjects four, five and six all pertain to different types of army

Digitized by Google

litters. In view of the fact that recent wars emphasize again and again the paramount importance of transport and of the necessity for different kinds of transport the practical importance of these subjects needs no comment.

Subject 8 is "The best method of heating railroad cars by a system independent of steam from the locomotive." Of course, we all realize that our railroad transport for wounded in war, especially at the front, and on the lines of communication must consist largely of freight cars. Some method for heating such cars is therefore essential.

Subject nine is an X-ray apparatus for field use. This is an especially pertinent subject at the present time, for with the replacement of horse drawn ambulances by automobiles a new source of power at once becomes available. Moreover, aside from this, easily transportable engines are now not uncommon.

The Marie Feodorovna Competition of next year will be the second occasion on which these prizes have been awarded, but the earlier competition which was held in London in 1907, was given little publicity in this country, so few of our medical officers knew of it, and this really is their first opportunity to compete. Without doubt the Marie Feodorovna is the most important competition of this character. Not only are the subjects of the greatest practical interest but the prizes are so large that prospective competitors can afford to go to considerable trouble and expense in preparing exhibits. Moreover, as the competition is open to the world the satisfaction of winning a prize must prove a great incentive. In view of these facts it is hoped, notwithstanding the apparent lack of interest so far manifested, that when the entry list is finally closed the names of many of our medical officers will appear thereon.

The announcement is now made by the American Red Cross that the period for receiving applications for the Marie Feodorovna Prize Competition will be extended to March 1, 1912, and that thereafter up to the time of opening the exhibition applications for space may be accepted if specially approved in each instance by the Central Committee of the American Red Cross. This will give competitors at least two months additional time to prepare their exhibits and even more if the exhibits previously received are not sufficient to fill all the available space.

Digitized by Google

SURGEON EUGENE WASDIN.

Surgeon Eugene Wasdin of the Public Health and Marine-Hospital Service died at Philadelphia, Pennsylvania, on November 17, 1911. Dr. Wasdin was born in Georgetown, South Carolina, September 28, 1859; he graduated from the Medical College of the State of South Carolina in 1882, and was appointed an Assistant Surgeon in the Marine Hospital Service August 2 ,1883. He was stationed successively at New Orleans, Louisiana; Galveston, Texas; New York, N. Y.; Chicago, Illinois; Mobile, Alabama; Charleston, South Carolina; South Atlantic Quarantine, Pittsburg, Pennsylvania; Havana, Cuba; Washington, D. C.; Buffalo, New York, and Memphis, Tennessee. He also served upon the Yellow Fever Commission of the service to which he belonged, and was a delegate to the International Medical Congress in 1899. He was also detailed for special duty at Bremen, Hamburg, Antwerp and Rotterdam. While in Buffalo in 1901 he was assigned to special duty with the President. On July 22, 1909, Dr. Wasdin was relieved from active duty at Memphis, Tennessee, on account of ill health.

Digitized by Google

NEWS OF THE SERVICES

BULLETIN OF MILITIA NOTES,
Issued by the Division of Militia Affairs, War Department,
For the Quarter Ending December 31, 1911.

December 16, 1911.

63. The Army Appropriation Bill contains a number of provisions which affect the organization of the army. The scope of some of the sections in the proposed legislation makes it the most important since the last general reorganization of the army in 1901. The Organized Militia, since it is a part of the first line of defense with the Army, is directly interested on account of the effect upon it, of the proposed measures, which include a five year enlistment and the abolishment of the present Division of Militia Affairs. The position of Chief of the Division will be done away with, under the proposed bill, and the office establishment consolidated into the proposed General Staff Bureau, to be composed of the present detailed General Staff and the present personnel of the Adjutant General's and Inspector General's Departments, including a certain number of officers who will be permanently on the General Staff.

It is, therefore, suggested that all the proposed amendments be carefully studied by the Organized Militia.

64. Funds derived from the sale of condemned military stores, and deposited to the credit of the Treasurer of the United States, as provided for by paragraph 119, Militia Regulations, 1910, are not credited to the Militia appropriations, and are not, therefore, recredited to a State's allotment. Attention, in this connection, is invited to Section 3618, Revised Statutes, which reads as follows:

> All proceeds of sales of old material, condemned stores, supplies, or other public property of any kind, except the proceeds of the sale or leasing of marine hospitals, or of the sales of revenue-cutters, or of the sales of commissary stores to the officers and enlisted men of the Army (or of materials, stores, or supplies sold to officers and soldiers of the Army), or of the sale of condemned Navy clothing, or of sales of materials, stores, or supplies to any exploring or surveying expedition authorized by law, shall be deposited and covered into the Treasury as miscellaneous receipts, on account of "proceeds of Government property," and shall not be withdrawn or applied, except in consequence of a subsequent appropriation made by law.

* * * * * * *

66. The Quartermaster's Department has tested three experimental escort wagons, the results of which have not been entirely satisfactory. Further tests and efforts will be made to improve this wagon. Whatever is accomplished, the new wagon will not be available for issue within twelve months, and under the policy of the War Department, all wagons of the

Digitized by Google

present type must be absorbed by issue to troops before commencing any issue of the new type of wagon.

67. Requests for transportation should be properly receipted by the person named therein. (Army Regulations, paragraph 1125). There is no authority for any person to sign receipts on behalf of the officer in whose favor a request for transportation is issued.

68. The Regular Army has not yet been supplied with the sweater, and it will be some time before the Quartermaster's Department will be prepared to issue sweaters to the Organized Militia. The olive drab coat will still be necessary for drills and ceremonies and occasions in camp when the field kit is not worn.

69. The conditions under which noncommissioned officers are detailed for duty with the Organized Militia are set forth in paragraph 349, Militia Regulations, which requires that the State furnish medical attendance. Under paragraph 1421, Army Regulations, dental work is included under the term "medical attendance" and is furnished free to enlisted men of the Regular Army. It is therefore included as medical attendance under paragraph 349, Militia Regulations.

* * * * * * *

74. It is regarded as advisable and is recommended that under peace strength there should always be available for assignment to each regimental organization, independent of the personnel of the minimum prescribed for Ambulance Companies and Field Hospitals, a sanitary personnel of four commissioned officers of the Medical Corps, and at least four noncommissioned officers and twelve privates (1st class) and privates of the Hospital Corps.

* * * * * * *

80. The Field Service School for Medical Officers, at Fort Leavenworth, Kansas, will begin its annual session April 1, 1912, and continue for a period of six weeks. General Orders, No. 132, War Department, 1910, establishing this school, provides for the attendance of six medical officers of the Organized Militia.

* * * * * * *

83. Attention is invited to Section 1784 of the Revised Statutes, as published and interpreted in Circular No. 77, War Department, series of 1909, which prohibits the receiving of presents by officers or employees of the Government:

The practice of receiving presents from persons not in the military establishment or in the employ of the Government, in recognition of services rendered, though not expressly forbidden, is opposed to the spirit of the statute and for that reason is not approved by the War Department.

It will be considered a violation of the spirit of the law for officers or noncommissioned officers on duty with the Organized Militia to receive gifts or presents either directly or indirectly from the commands with which they are doing duty.

84. Pages 12 and 13, Bulletin of Militia Notes, for the quarter ending

Digitized by Google

December 31, 1911, were erroneously dated December 16, 1911, instead of November 16, 1911.

(Sgn.) R. K. EVANS,
Brigadier General,
Chief, Division of Militia Affairs,
For the Chief of Staff

A reprint of a very interesting article entitled "A New First-Aid Packet" which appeared in the Journal of the Royal Army Medical Corps, for September, 1911, has been received in this office. This is from the pen of Colonel N. Antelo, Medical Corps, Argentine Army, who was a delegate of his government to the 19th Annual Meeting of this Association.

The American Journal of Surgery will soon publish a Special Western Number. This will be composed of contributions from western surgeons of international reputation.

At the recent meeting in Washington, D. C., of the Southern Surgical and Gynecological Society the eminent surgeon, Dr. Henry O. Marcy, of Boston, Late Surgeon and Medical Director, U. S. A., read an interesting paper.

Dr. Marcy is well known as the first American pupil of Lord Lister and the introducer of antiseptic surgery into America. He considers that his best contribution to surgery is the buried animal suture now in almost universal use. To him the profession is indebted for the cure of inguinal hernia, by the reconstruction of the inguinal canal, to its normal length and obliquity, which is rendered possible only by the use of buried sutures. The method is too well known to require description. It is, of course, dependent upon free dissection, a coaptation of the weakened structures posterior to the cord with a firm reconstruction of the inguinal ring; a replacement of the cord, a careful closure of the superficial structures and sealing of the wound with iodoform collodion, without drainage. For many reasons Dr. Marcy thinks kangaroo tendon the preferable suture.

Dr. Marcy's contribution is especially offered as a criticism of a late article published by Lieut. Col. Ruotte of Paris, in The Military Surgeon, who considers the especial factor for the cure of inguinal hernia to consist of the suturing and resection of the peritoneal sac.

Dr. Marcy demonstrates that the especial value of Col. Ruotte's operation must only consist in the closure of the internal ring which thereby necessarily elevates the cord in its passage through the abdominal structures. He believes whatever reinforcement may result to the structures posterior to the canal, are altogether accidental and, as a consequence, the so-called "French Method" is unscientific and the results must often be uncertain and unsatisfactory.

The following letter was recently received from the Chief Surgeon of Arkansas:

"The association of officers of the Arkansas National Guard, held its

Digitized by Google

annual meeting at Little Rock, November 27-28. The attendance was poor, there being about twenty officers present. This paucity in number does not mean that those who hold commissions are faithless; but it does mean that those who hold commissions have not yet realized the necessity of dropping off work once a year uniformly for the purpose of meeting to discuss the best methods of publishing the usefulness of the National Guard. The public should know the National Guardsmen are interested in the education and training of men, and to this end permit me to quote from the address of Major Leonard R. Ellis, the retiring president of the Arkansas National Guard Association, and executive officer of the Medical Department.

"Major Ellis said:

" 'Now how are we to attain that position of soldier that we want? First I should say, create in the minds of the citizenship of this state, the Governor, the legislators, that spirit of civic pride, that if we are going to have an organization of this character, that we must be as good if not better than our sister states. The knowledge that as property owners and tax payers that they have certain rights that have to be considered and protected and that the National Guard is their only protection to be relied upon in such instances. Second, by our acts as officers of this body of men, show to the law-making body that we are a necessity and have to have their support that we may exist, create such a sentiment among them, that when we go to them asking their aid that all they will ask us is, How much do you need?

" 'Try to teach the young men of our communities that being a soldier or a member of this guard is not mere play, but a school of learning and training for each and everyone who tries.

" 'Teach them that it is better to be a trained soldier if the time should arise when they are needed to protect their homes, than it is to be a Rooky.

" 'Now how are you going to teach the soldier?

" 'First learn our own lesson.

" 'How are we going to learn our own lesson?

" 'By schools of instructions, under the supervision of men from the U. S. Army with its field maneuvers have done more to fortify the defense of this great country than anything has ever done before; it has revolutionized the schooling of both officers and men, it has taught them self preservation, and has eliminated sickness almost entirely and I hope to live to see the day when an army will not need the services of a doctor. We are nearing the time when the first thing taught our children in our great public schools will be personal hygiene, sanitation, and how to prevent sickness.

" 'Gentlemen, there is only one way that we can learn our lesson, and that is from some one who already knows it, and there are plenty of men in the U. S. Army who do know how and we are in position to get them when we wish.

" 'I venture to say that the ten days' schooling that has been given the officers of this organization has been more instructive to them than if they

Digitized by Google

had gone into camp for six months. If I had my way I would ask that an officer be detailed from the War Department to do nothing but instruct our officers, first let him be sent to the office of the Adjutant General, and there assume the rank of Adjutant General of the Arkansas National Guard, and let our Adjutant General and his assistants take the required ten days' schooling or more if necessary until they have acquired sufficient knowledge to perform their duties as the rules and regulations require, then let him be detailed to the office of the Quartermaster and instruct the Quartermaster and his assistants in a like manner, then hold your officers' school right here in the capitol building for the company commanders and their assistants under some one who would see to it that each officer was present and attending school and trying to learn his lesson.

"'This instruction must also apply to the medical department as it is just as easy to have a medical officer detailed to instruct us as it is for one of you.

"'Then after this schooling there should be an examination held to determine who has been faithful to his trust, and to those who had done his best, I would say to him, you are not going on the supernumerary just yet.

"'Now, if this were done, why would not every officer in this guard know his duty and know it well enough to impart it to the men under his command? Let this same rule apply to every department of his organization, and the sooner it is done the sooner we are going to build the organization up to that high degree of efficiency that is needed.

"'Now gentlemen of the Arkansas National Guard, I assure you that I am not trying to find fault with any of you, for I as an officer among you have too many of my own to look for yours, I am simply giving you my ideas as to what in my mind would be most beneficial to you as officers of the Arkansas National Guard.

"'My one interest in this organization, while I am a member, is to do all that I can to help upbuild and maintain a first-class army in this State.

"'Gentlemen, there are many more things that I might add in the manner of deficiencies among us, but I firmly believe that when we get started in the right direction that all other things necessary for our military education and training will come quickly. Let us hope.'"

The St. Louis Society of Officers of the Medical Reserve Corps gave a dinner at the St. Louis Club on Monday, November 20th, 1911, in honor of the Commanding Officer and the Medical Staff of Jefferson Barracks.

Quite a number of members of the local Society were present, and a pleasant evening was reported by all who attended.

The visitors were: Col. W. T. Woods, Commanding Officer at the Barracks; Col. Louis Brechemin, M. C., in charge of the United States Army Medical Supply Depot in St. Louis; Major D. C. Howard, M. C.; Capt. R. W. Bryan, M. C.; Capt. H. C. Pillsbury, M. C., and F. G. Abeken, M. D., Passed Assistant Surgeon, United States Navy.

Digitized by Google

The Society was urged to take steps to bring the meeting of the Association of Military Surgeons to St. Louis in 1913.

All members of the Medical Reserve Corps, residing in or near St. Louis, are eligible to membership in the St. Louis Society. Those who have not already joined are requested to communicate at once with the secretary, Dr. W. H. Luedde, 314 Metropolitan Building, so that the roster of the Society may be made complete.—*Weekly Bulletin of the St. Louis Medical Society,* Dec. 7, 1911.

The following invitation has been received in this office:

You are invited to attend and take part in a discussion of the following subjects: "Typhoid Vaccination" and "The Efficiency and Use of Salvarsan," to be given at the Army Hospital at Fort Lincoln, N. D., Monday, November twenty-seven, Nineteen Hundred Eleven, from Three P. M. to Five P. M.

Committee.—Lt. M. W. Roan, M. R. C.; Lt. A. M. Fisher, M. R. C.; Lt. F. B. Strauss, M. R. C.; L. A. Schepfer, M. D.; C. E. Stackhouse, M. D.; T. M. M'Lachlin, M. D.; F. R. Smyth, M. D.; N. O. Ramstad, M. D.; E. P. Quain, M. D.; V. J. La Rose, M. D.; A. M. Brandt, M. D.; and officers of the post, Fort Lincoln, N. D.

Programme.—"Typhoid Vaccination"—Lead by Major Louis Brechemin, M. C., U. S. A. "The Efficiency and Use of Salvarsan"—Lead by First Lieut. H. H. Smith, M. R. C., U. S. A. Followed by a general discussion by the invited guests.

In a recent number of *Our State Army and Navy,* Pennsylvania, an article appears entitled "Veterans of the Civil War Still in Active Service." Among these distinguished officers, of whom there are but five, appears the name of Colonel Joseph K. Weaver, Surgeon General. Colonel Weaver's service is described as follows:

Colonel Joseph K. Weaver is a native of Westmoreland county. When the call for troops was issued in 1861 he resigned a position as a school principal, and enlisted as First Lieutenant of Company D, One Hundred ad Thirty-fifth Pennsylvania Volunteers. The regiment became part of the first corps of the Potomac. After taking part in the Chancellorsville campaign, he was mustered out of service, his term of enlistment having expired. In July, 1863, he became a company commander, and served in Ohio during Morgan's raid. In 1864 he commanded a company of mounted men for provost duty.

Colonel Weaver served in the National Guard from August 27, 1874, first as surgeon, Sixth Regiment, then as Brigade Surgeon, First Brigade; as Division Surgeon, and as Surgeon General, with rank of Colonel. He was appointed to this last position in 1904 and still retains it. Colonel Weaver served as Brigade Surgeon and as Division Surgeon of the United States Army during the Spanish-American War.

With the approval of the Secretary of the Treasury, Passed Assistant Surgeon J. W. Schereschewsky, U. S. P. H. & M.-H. S., has been designated as director of the exhibition to be held in connection with the International Congress on Hygiene and Demography at Washington, September next. Dr. Schereschewsky had performed similar duty in assembling the

Digitized by Google

child hygiene exhibit held in connection with the first annual meeting of the National Association for the Study and Prevention of Tuberculosis in Baltimore in 1910. It is the desire of those in charge of the Congress that the exhibition shall represent present public health activities in the United States and its possessions.

Passed Assistant Surgeon G. W. McCoy, who was detailed as Director of the Leprosy Investigation Station October 23, has arrived in Honolulu. The investigations in which he will be engaged were provided for March 3, 1905, and it is expected that they will be continued indefinitely. The studies thus far made at the station have related to the growth of the leprosy bacillus on artificial media, its inoculation into laboratory animals, the production of curative vaccines and serum, and epidemiologic studies of the disease.

The Station was formerly in charge of the late Dr. Walter R. Brinckerhoff. He was succeeded by Passed Assistant Surgeon D. H. Currie, who in turn is succeeded by Dr. McCoy. Dr. McCoy will have associated with him Dr. Moses T. Clegg, Assistant Director, and Acting Assistant Surgeon H. T. Hollman. It will be remembered that it was Dr. Clegg who first succeeded in growing the leprosy bacillus on artificial media, his work being later confirmed by Brinckerhoff, Currie, and others.

Assistant Surgeon S. C. Hotchkiss, who has been making sanitary investigations of mines and the mining industry during the past several months, returned to Washington December 7. The work in which Dr. Hotchkiss has been engaged was undertaken in coöperation with the Bureau of Mines. In response to a resolution adopted by the National Association for the Study and Prevention of Tuberculosis, special attention has been paid to lung diseases among miners and the factors causing them. It is generally believed that lung diseases are unusually prevalent among workers in metal mines, and for this reason this class of mines was made the subject of special investigation. Other investigations of coal mines and the coal mining industry have been made by Passed Assistant Surgeon W. C. Rucker and Prof. C. W. Stiles. In connection with this work also Surgeon J. B. Stoner has been detailed to coöperate with the officers in charge of the research laboratory of the Bureau of Mines at Pittsburg, in making physical examinations of miners prior to their receiving instruction in mine rescue work, and in giving lectures on first aid to the miners.

On account of the undue prevalence of typhoid fever in Lincoln, Neb., and in response to a request from the Governor of that State, Passed Assistant Surgeon L. L. Lumsden was detailed to make an investigation of the situation October 23, 1911. His investigations showed that the outbreak was definitely attributable to the local water supply.

Passed Assistant Surgeon J. F. Anderson, Director of the Hygienic

Digitized by Google

Laboratory, was detailed to represent the Service at the meeting of the American Public Health Association held in Havana, December 5 to 9. Dr. Anderson presented a paper giving a resume of the measures taken to prevent the introduction of cholera into the United States during the past year.

On request of the local authorities, Passed Assistant Surgeon W. H. Frost was ordered to make an investigation of the prevalence of poliomyelitis in Cincinnati and vicinity. His studies are of a clinical and laboratory nature, and have been carried on in coöperation with the state and local health authorities.

Reports were received October 18th of an outbreak of typhoid fever in Texarkana. On account of the danger of, the spread of the disease in interstate traffic, Passed Assistant Surgeon Ridlon was detailed to investigate the situation and ordered to determine the origin and prevalence of the outbreak and the measures that should be taken for its control.

Colonel R. G. Ebert, Medical Corps, U. S. A., who has been to the Hawaiian Islands making an inspection of the military posts there, has returned to his duties as Chief Surgeon, Western Division.

Captain Louis H. Hanson, Medical Corps, has left his post, Fort Hamilton, New York, on a three months' leave of absence.

Major J. H. Allen, Medical Corps, Fort Myer, Virginia, accompanied a part of the 25th Infantry to San Francisco, California. The regiment sailed for the Philippines on the December 5th transport. Major Allen has returned to his station, Fort Myer.

A General Court Martial was convened at Fort Jay, New York Harbor, on November 17th, for the trial of Major Frank T. Woodbury, Medical Corps; the trial resulted from a misunderstanding in a case of paraplegia at Fort Assinniboine, Montana, in March, 1911, during the last days of the existence of that post.

Captain Charles F. Craig, Medical Corps, attended the meeting of the Southern Medical Association at Hattiesburg, Mississippi, November 14-16, 1911.

Captain Harold W. Jones, Medical Corps, who has been on duty at the Walter Reed General Hospital, Takoma Park, D. C., for more than two years, has been relieved from duty at that hospital and assigned to duty as Surgeon at Jackson Barracks, Louisiana.

Friends of Major Clyde S. Ford, Medical Corps, will be glad to know that he is rapidly recovering from the results of a serious operation performed at the Grant Hospital, Columbus, Ohio, the early part of November.

1st Lieutenant A. M. Guittard, Medical Reserve Corps, will remain on duty in the Philippine Islands until July 1, 1912; he will then be granted all the leave of absence due him on full pay and at the expiration of this leave will be honorably discharged from the Medical Reserve Corps.

Digitized by Google

The following-named medical officers have been designated to take the course at the Correspondence School for Medical Officers, Fort Leavenworth, Kansas:

Major Charles Lynch,
Major James M. Kennedy,
Major Deane C. Howard,
Major William H. Wilson,
Major William F. Lewis,
Major Thomas J. Kirkpatrick,
Major Irving W. Rand,
Major Powell C. Fauntleroy,
Major James S. Wilson,
Major Basil H. Dutcher,
Major Leigh A. Fuller,
Major George A. Skinner,
Major Carl R. Darnall,
Major Henry Page,
Major Henry A. Webber,
Major Jere B. Clayton,
Major Edward R. Schreiner,
Major Frederick M. Hartsock,
Major Douglas F. Duval,
Major Clarence J. Manly,
Major David Baker,
Major James R. Church,
Major Elmer A. Dean,
Major Francis M. C. Usher,
Major Willard F. Truby,
Major Henry S. Greenleaf,
Major Louis T. Hess,
Major Christopher C. Collins,
Major Benjamin J. Edgar, Jr.,
Major George M. Ekwurzel.

Cards have been issued for the marriage of Captain Joseph F. Siler, Medical Corps, to Miss Kate Douglas McNeill, University of Virginia, on December 28, 1911.

Captain Mahlon Ashford, Medical Corps, is spending a two months' leave of absence in Washington, D. C.

Captain William H. Richardson, Medical Corps, who is on a two months' leave of absence from Fort Miley, California, spent a few days in Washington during the week beginning December 11.

The friends of Lieut. Col. William D. Crosby, Medical Corps, will be pleased to know that he was very much improved in health by his sojourn at the Army and Navy General Hospital, Hot Springs, Arkansas. Colonel Crosby is now on a two months' leave of absence which he expects to spend in the southwest.

1st Lieutenant George R. Clayton, Medical Reserve Corps, who has been attached to the Medical Department since August 18, 1910, as a Contract Surgeon and Medical Reserve officer, was relieved from further duty in the Corps on December 16, 1911.

Captain Hiram A. Phillips, Medical Corps, who was on leave of absence, entered the Walter Reed General Hospital on November 23rd, where he was operated on for appendicitis; he is recovering very rapidly.

Lieutenant Colonel Jefferson R. Kean, Medical Corps, represented the Medical Department of the Army at the Annual Meeting of the American Public Health Association which met in Havana, Cuba, December 4-9, 1911.

1st Lieutenant Wilson Murray, Medical Reserve Corps, who has been on duty with the Medical Department as a Contract Surgeon and Medical Reserve officer since July 22, 1899, has been granted two months' leave of absence to take effect the last of December; at the expiration of this

Digitized by Google

leave he will stand relieved from active duty in the Medical Reserve Corps.

The following-named medical officers have been designated to take the course at the Field Service School for Medical Officers at Fort Leavenworth, Kansas, for 1912:

Major William F. Lewis, Medical Corps,
Major Jere B. Clayton, Medical Corps,
Major Elmer A. Dean, Medical Corps,
Major William N. Bispham, Medical Corps,
Major George M. Ekwurzel, Medical Corps,
Major Robert U. Patterson, Medical Corps,
Capt. James L. Bevans, Medical Corps,
Capt. Henry D. Thomason, Medical Corps.

Digitized by Google

The Military Surgeon

Vol. XXX. FEBRUARY, 1912 No. 2

ORIGINAL ARTICLES.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

DRESDEN.

THE "INTERNATIONALE HYGIENE AUSSTELLUNG, DRESDEN, 1911."

By Medical Director HENRY G. BEYER, U. S. Navy, U. S. Delegate to the Exposition.

THE "Internationale Hygiene Ausstellung, Dresden, 1911," has by this time closed its doors and passed into history. It was one of those rare and remarkable creations of the human mind

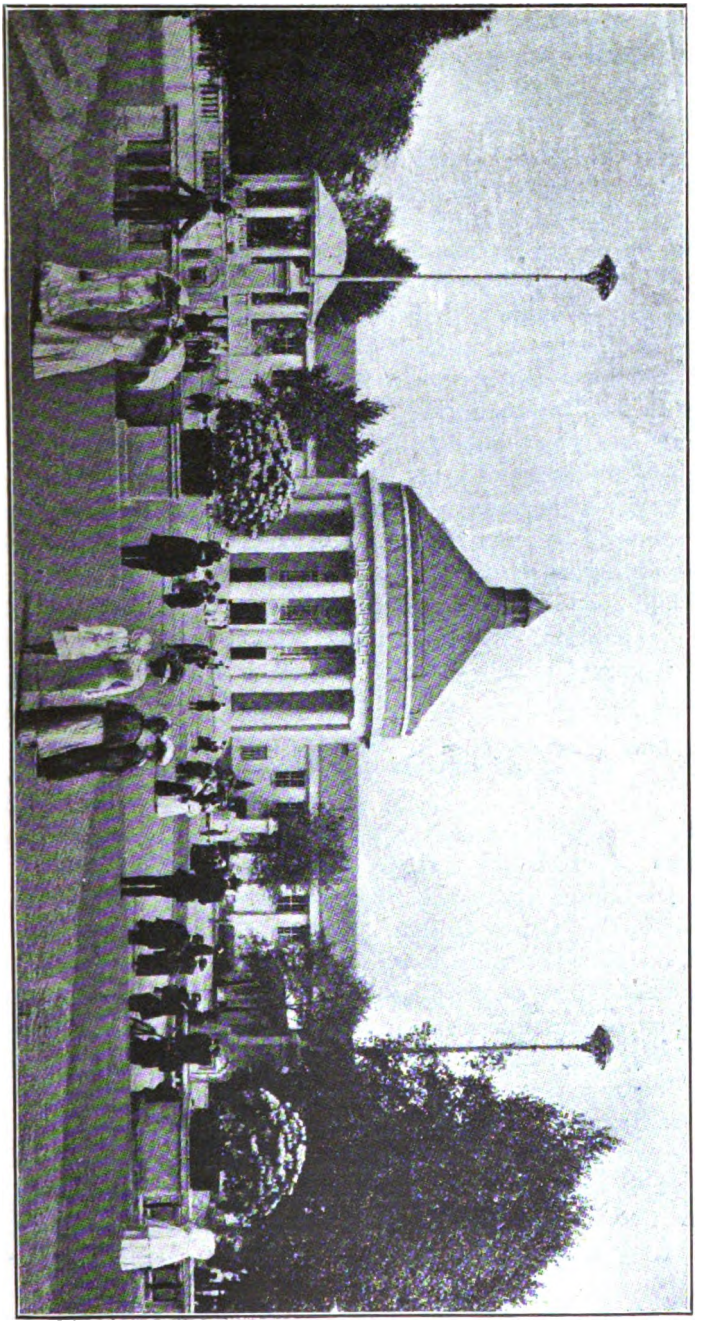
Digitized by Google

that will absolutely refuse to die. The exposition itself was only the opening scene in a performance which had its beginning in the month of May and ended with a climax in the month of October, when the curtain dropped. Its real work, though impressive and monumental from the start, has only just begun. Little folks and little minds may criticise the little imperfections about it from a distance. Those who are in the habit of looking for principles in things with broad and generous minds, having taken the trouble to visit and study the exposition more conscientiously, were overwhelmed with its grandeur, its beauty, and the nobility of the motives underlying the undertaking. Fortunate, indeed, are those who were allowed to witness the great event, still more fortunate those who may count themselves active participants in it. For, nothing, no event in history could be cited as showing the work of the human mind in the Germanic race of man, as illustrating it in all its splendid attributes and as placing it in a clearer light, to better advantage than did this magnificent hygienic exposition. No other human endeavor could be cited as showing the ultimate motive power in the accumulation of personal wealth to be, in reality, that of acquiring the ability and power of giving to others and of, thus, contributing to the happiness of others, than did this exposition. As an organized endeavor to prevent sickness and prolong human life, to project the living laws of health and happiness into the minds, the hearts and the very homes of people, it certainly surpassed anything of the kind in the whole history of hygiene and sanitation.

There is not a single visitor who does not regret the shortness of the existence of this great exposition; who did not feel his interest in it increasing daily, while in attendance; who would not welcome an opportunity of returning to it for more instruction and inspiration, who was not moved to wish that every living man and woman might receive the benefits this exposition was intended to convey and to disseminate.

All expositions are schools of learning of the most practical sort. International expositions are the universities in which the different nations teach each other. The exhibits, carefully selected and arranged in groups, represent the achievements of many years, the results of years of study and labor, in a predigested form and ready to enter the understanding without re-

Digitized by Google



CENTRAL PLACE OF THE EXHIBITION AND THE PALACE „DER MENSCH" (THE HUMAN BEING).

Digitized by Google

quiring any effort on the part of the observer except that he be in a receptive mood. There was a time when the attributes of usefulness on the part of the high arts and sciences were regarded as detracting from their value; when the beauty of an object was thought to end where its usefulness began; when sciences, we were told, had a right to exist for their own sake and regardless of their usefulness to mankind. Human physiology itself, during its juvenile department in recent years had become so precociously independent as to barely recognize its ancient relationship to mother Medicine. What a remarkable change of front in this general attitude has been made in a few years, was perhaps never better shown nor more efficiently demonstrated, than in the "Internationale Hygiene Exposition, Dresden, 1911," where one great intelligent, strong mind succeeded in gently pressing the fruits of every known art, science and industry into the service of humanity. Disciplined, orderly coöperation toward one common and useful end and purpose was never and nowhere shown to better advantage, than in the work of organizing, creating and conducting to a most successful termination this truly great exposition. By no means the least that can be said of it is, that it proved to be a financial as well as a scientific and philanthropic success.

A GENERAL VIEW OF THE EXPOSITION GROUNDS.

The exposition grounds cover in all an area of 320,000 square meters, of which 70,000 square meters are occupied by buildings, 72 in all, large and small. This immense area was contributed partly by the "Grosse Garten," partly by the Royal Botanical Garden, the park of Prince John George and the Dresden Commons. The Lenné'-Strasse, dividing this area, was bridged over. One of the first serious difficulties in planning, with which the Dresden architects were confronted, was to so distribute their buildings that the large fine old Linden trees in these various parks should not be damaged. This difficulty they succeeded in overcoming to perfection. They distributed the various buildings in such a manner as to make the trees serve as a rich green background for them, thus, at the same time, avoiding rigid geometrical lines and producing instead a most picturesque effect.

Digitized by Google

The main entrance to the grounds consists of three rows of large and imposing columns, covered in above. Passing through these columns, and to the right of the main entrance we find the administration building which houses the various offices of the Director, Assistant Directors, the post offices, the fire department and the sanitary and red cross companies, all excellently and most efficiently organized; to the left stands a very large structure containing the Assembly Hall, intended for the meetings of the large number of congresses that met in Dresden during the summer, the various exposition halls for school hygiene and the care of children, exhibition rooms for dental hygiene, tropical hygiene and chemical industries, for infectious and venereal diseases. From the enclosed oblong square, the visitor overlooks a larger open space and notices in the distance the imposing structure devoted to popular hygiene which is marked above the entrance in large and imposing letters, "Der Mensch." This imposing structure has a prominent, semi-circular entrance, divided by a series of large columns, 11 meters high, surmounted by a cupola and leading into a spacious vestibule, on either side of which are wardrobes, and, finally, into a magnificent hall with a stage or podium at its furthest end for giving seating capacity to the officers conducting various meetings, with their guests of honor. Against the background of this stage there is visible a large statue with the inscription "No Wealth is Equal to Thee, O Health!" This entire building is devoted to popular hygiene. Passing down the wide steps of the first open square, we find ourselves entering a larger open enclosure in the grounds. This is the so-called "Festplatz." On the sides of this Festplatz various small stores, a music pavilion, garden restaurant; to the right, a wine restaurant with a terrace above and the recently erected pavilion of Great Britain. Further to the left and overlooking the garden restaurant there is the permanent exhibition building of Dresden, artistically embedded among the new buildings. On the left also and against the botanical garden we find the recreation park. This park is occupied by a very original Bavarian restaurant, a hippodrome, a place for dancing an academic beer-kneipe, Japanese and Indian teahouses. This recreation park proved a great necessity in that it accommodated the overflow of sightseers and gave them a chance to rest and refresh

Digitized by Google

themselves, lending at the same time variety to scenery and interest to sightseers, without interfering with the intended serious character of the exposition.

The city exposition palace, Steinpalast or Hauptpalast, forms the centre of the exposition; this palace had to undergo extensive interior changes to accommodate the historical and ethnological sections, forming some of the most remarkable features of the whole exhibition. While exhibiting most effectually the contrast between past and present conditions as regards hygiene, they also showed and illustrated what we hear so often without attaching any profound meaning to it, namely, that there is

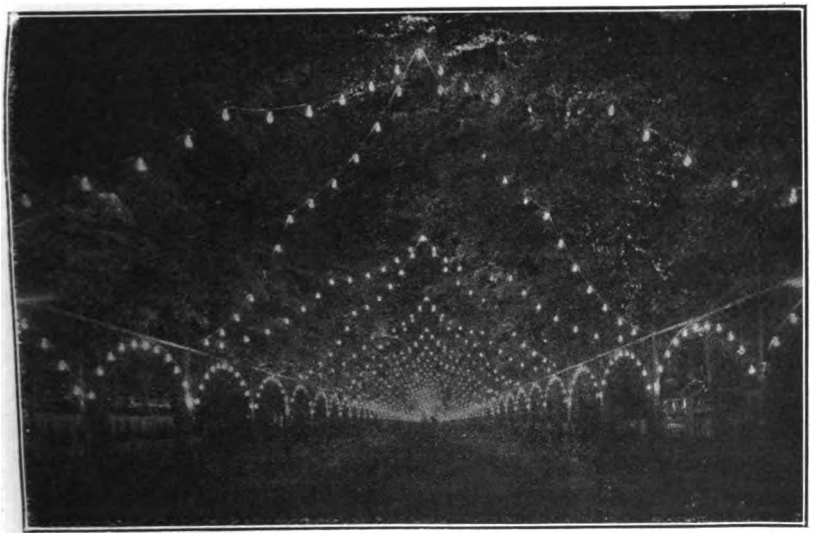
AT THE AFTERNOON CONCERT.

nothing new under the sun, and what we call new, in reality, embodies an old and identical idea in a new garb.

Connected with the Steinpalast by large halls is the "Halle for Chemical Industry" and scientific instruments. To the right of the large "Festplatz" and between it and the "Grosse Garten" and amidst a long row of fine large Linden trees, there runs along an avenue, 40 meters wide, along one of the sides of which foreign nations have erected their pavilions. China has erected a

Digitized by Google

pavilion in the form of a pagoda. Austria has built a large-sized rectangular structure with a massive roof, high walls, large windows and wide imposing entrances. Russia has erected a building after designs made by a Russian architect and resembling in style some of the buildings seen in the Kremlin. Japan, likewise, has contributed a rectangular structure, after a national design, simple but most effective in displaying the exhibits. Switzerland has put up a building characteristic of the Bernese Netherlands. Spain, Italy, France, Hungary and Amsterdam all have erected pavilions in style of architecture exhibiting the national characteristics in their designs. This "rue des nations," shows off well at



THE VÖLKERSTRASSE (STREET OF NATIONS) IN THE EVENING. INTERNATIONAL PROMENADE. CONCERTS.

night when illuminated. Passing out of the "rue des nations" and around the end of the botanical garden, we come in sight of the several large halls, housing life-saving devices, means for the care of the sick and injured, traffic on land and sea, appliances used in the care of prisoners and the insane, army, navy and colonial hygiene. A sylvan restaurant stands at all hours ready to administer to the physical needs of the visitor.

A number of smaller buildings, devoted to various purposes, such as the care of the crippled, the housing of the poor, sylvan

Digitized by Google

burial of the dead, the rearing of various species of rabbits for food purposes, a model stable for cows and clean milk production form the outskirts of this part of the exhibition grounds.

Passing now over the bridge across the Lenné'-Strasse which separates the two main divisions of the exhibition grounds, we may either climb the few steps that lead up to the bridge or simply step on the inclined surface of a sidewalk, in constant motion, carrying passengers up at the expense of 2½ cents. The bridge leads the visitor over into the second great division of the grounds. Here we find, on the right, the large hall for occupational hygiene, on the left, the powerhouse; facing the visitor, is the gigantic hall marked "Settlement and Habitation," one of the richest, so far as contents are concerned, of the whole exhibition. Passing the music stand and turning to the left we have, on the left, an Abyssinian village; on the right, several small and large restaurants and enter a large open space having on one side the large hall devoted to the hygiene of clothing and the general care of the body, on the other, the hall exhibiting nutrition, dietetics and food stuffs, while facing us, in the distance, there is the large oval for sports with its stadium, music stand, grandstand, restaurant and sport laboratory as well as the immense swimming tank called "Undosa." In this swimming tank, artificial waves about three feet high are produced by mechanical means and the bather gets the benefit of an open air bathing resort nearer at home.

The sport laboratory is fitted out with all sorts of scientific instruments and apparatuses to investigate scientifically the effects of physical exercise on the human body, especially on heart and lungs. A gymnasium showing the usual development instruments is well stocked with material. The great oval is for outdoor meets and is almost daily in use.

In thus decentralizing the interesting points of the exhibition, the administration was parting company with the principle of housing everything under one roof and thus made a new and very attractive innovation. It avoided overcrowding of the visitors and divided them by a variety of interests located in different halls; it reduced the danger of a large fire, hoping, in case there should be one, to limit it to one or a part of one building by a system of hydrants most generously distributed through the grounds. Through this division of subjects among a large num-

Digitized by Google

ber of buildings it was possible for the visitor to pursue his studies on the subject he was interested in especially, without being disturbed and crowded out by visitors interested in other pursuits.

THE EXPOSITION BUILDINGS.

One of the most noteworthy features of the exposition was the architectural beauty of the buildings, including their interior decorations. While the designs of the various buildings differed from each other individually, their structural execution showed that they belonged to the same genus, while all were artistically adapted to the more practical purposes which they were intended to serve. Made principally of wood, all exposed surfaces were provided with a fireproof, course-grained covering. Gay, but superfluous, bunting, likely to catch fire and calculated to detract the visitor's eye from the main objects of the exposition, were carefully avoided, while a fine sense of artistic finish, calculated to invite the visitor to concentrate his attentions on the objects of the exposition, was everywhere apparent. The quiet, serious character of the buildings, their generous dimensions, large doorways, wide passage-ways, an abundant provision of light and air were features, without attracting special attention to themselves, that were nevertheless in the most perfect harmony with the serious purposes and the hygienic characters of the exhibition and aided materially in sustaining instead of fatiguing the attention of the visitors.

THE EXPOSITION.

It could never have been our purpose to attempt giving a full description of this exhibition. Such an undertaking would require a whole corps of editors and end in the publication of a long series of illustrated books. The intention here is to give only a very brief review of the greatest living handbook on Hygiene ever put together and for which the Exposition stood from the beginning and to which high purpose, in reality, it remained true to the end.

Digitized by Google

STEINPALAST.

Historical Division. How deep, wide and far-reaching were the conceptions dominating the minds of those who were called upon to plan and organize the exposition, was in no department of the exhibition better shown than in the historical division. There was to be no mere comparison between what hygiene is now and that which it represented 50 years ago, but the problem before the organizers was to trace the whole history of hygiene from the remotest beginnings to the present time and to illustrate this gradual evolution by pictures, models and objects, actually dating from those times.

Among the praehistoric Kelto-germanic exhibits could be seen foodstuffs, etc., dating from the stone age. A wall picture from a slightly later period displayed the remarkable fact that the wasp-like waist, so much admired on the part of the female sex today, had been already the ambition of the praehistoric woman. To ward off diseases by the wearing of amulettes was already then in vogue.

Praehistoric Babylon shows that, in these remote times, the most detailed precautions were already taken for keeping all sorts of insects off from food articles, especially during the serving of them. The hygienic tendencies of old Babylon are shown in the technique employed in the construction of their wells, canalizations, bathing establishments, latrines and burial systems. The practice of isolating cases of infectious disease, of cleaning foodstuffs before they are eaten and of setting aside a fixed number of days for rest and recreation, was already then commonly observed in Mesopotamia.

The significance of old *Jewish hygiene* is abundantly shown, in the directions on the treatment of articles of food, the regulations for sexual intercourse, the treatment of excrement, burial rites, instituting the regular sabbath which has conquered the world, the priestly inspection of lepers, preserved in old and time-honored rolls of the Tora and further illustrated by sketches, photographs and models.

In praehistoric *Egypt,* the manifest tendency of preserving the human body after death for a future life in an unchanged form, is hygienically considered the most interesting. That the sun-

Digitized by Google

dried soil of Egypt contributed largely to the results obtained, is shown when original mummies are compared with the results obtained by artificial drying of animal bodies. To what an alarming extent organized disease-producers had been at work thousands of years ago, on the Nile, is abundantly shown in a large collection of preparations of Egyptian origin in glass bottles.

The statues of the Venus of Praxiteles and of the Doryphoros of Polyklet serve to show how much attention was paid already in those early times by the Greeks to the care and systematic development of the human body from early childhood throughout adult life. That the Goddess Hygeia stood in great esteem in ancient Greece is shown in citations from Grecian poets. Models of the recent excavations of the town of Salona in Dalmatia, show us a typical Roman provincial town with its splendid streets, water supply- and sewer systems and bathing establishments; a third model, also, shows one of the thermal establishments of Imperial Rome, that of Caracalla. Storerooms for provisions, grain mills and kitchen hearths of Graeco-Roman culture, are shown in the form of models. Wall pictures complete the illustrations of the dietary customs of ancient Rome and Greece. Numerous models of Etruskan and Sardinian types of houses, showing the construction of latrines, the methods of lighting and heating, their bathing establishment, treating exhaustively of the home life of these times.

A special room is devoted to showing how great and thorough were the hygienic precautions promulgated in both Greece and Italy. These ancient framers of the laws already knew the great value to the state of strong and healthy people as shown by the laws they promulgated. Food adulterations also received their due share of attention. But the most significant hygienic characteristic of ancient Rome and Greece centers undoubtedly in the methods of street construction, water supply systems and sewerage systems.

Another special room is devoted to showing the efforts of the physicians of those ancient times as being not alone those of restoring the sick to health but also those of preventing the well from becoming sick. A plan of the sanatorium in Kos shows its sanitary situation on the south side of a hill covered with trees. Mothers were made to nurse their own children or substitute a

Digitized by Google

wet nurse; the bottle came into consideration only as a feeding instrument of children during the second year of their lives.

The last room of classical antiquity is devoted to burial customs. It is here shown that cremation was not the exclusive method of disposal of the dead in classical antiquity.

We will have to pass over the different epochs that mark the progress of hygiene during the middle ages which was shown and interestingly emphasized by a great variety of exhibits, collected from all parts of the world and contributed at great expense, distributed through 22 rooms, both large and small, and in which that gradual but steady progress was shown by graphic, plastic and pictorial exhibits from the time when physicians diagnosed disease by simply looking at the urine-bottle of their patients, up to the period when hygiene began to be taken more seriously and entered into the dignified domain of an experimental science.

We must, likewise, pass over the ethnological portions of the exhibition although most interesting and highly instructive in showing the customs and habits of the different races peopling our globe and their common desire for a long, happy and healthy life.

In leaving the historical and ethnological groups of the exhibition, one can scarcely turn aside an ever increasing impression of the existence of a great variety of distinct and widely differing species of the genus *homo*. Even if a common origin for all should finally be accepted, it will have to be admitted that the genus *man* has shared in the tendency of all life in general, namely, that of producing varieties, differing almost as widely from each other in their habits, achievements and productions, as do the various organs in a single individual living animal organism, in their functions. The study of the comparative physiology and psychology of races, (ethnology) therefore, teaches us that their respective manners, customs and achievements differ in accordance with their hereditary composition and will continue to do so to the end of time.

About 450 individuals and firms had sent contributions to the historical group of the exhibition alone.

Scientific and Industrial Divisions. While it had been the object of the historical and ethnological divisions to trace the beginnings of hygiene to its remotest origin, deeply rooted in the history of mankind itself, it was the object of the scientific division to give

Digitized by Google

us a systematic and comprehensive exhibit representing the achievements of present day hygiene. To this end, the whole domain of hygiene was divided into 36 main and 7 special groups. The internal arrangement of the material of each group was determined by the character of the material and not by the wishes of the exhibitor. Industrial exhibitors, however, were permitted to put up special exhibits outside of, but in connection with and close to the scientific group to which such exhibits belonged. The individual groups of the scientific division were collected into and distributed through eight large pavilions, around which were put up the corresponding industrial exhibits. It was shown, incidentally, how industry had at all times been a factor in the development of applied hygiene.

Infectious Diseases of Man. The special catalogue of exhibits devoted to the group of infectious diseases of man alone covers 199 pages. Contributions to this group had been received from every known institute of infectious diseases of the world. A completely equipped bacteriological laboratory furnished by F. and M. Lautenschläger, Berlin, and put up and arranged according to directions given by the Royal Institute of Infectious Diseases of Berlin, gave a comprehensive picture of the apparatuses in use in the bacteriological and serological investigations. Special attention was devoted to Botulismus, cholera, diphtheria, cerebrospinal meningitis, gonorrhoea, influenza, whooping cough, leprosy, measles, Malta-fever, paratyphus, plague, pneumonia, puerperal fever, dysentery, scarlatina, the various streptococcal diseases and syphilis. All known etiological factors of these diseases were shown in all conceivable forms, by colored drawings, under the microscope, in the living and stained conditions, in cultures, in the various organs and tissues of the body, on microphotographs and diapositives. The origin, spread and prevention of epidemics were traced and shown. An immense number of statistical and cartographic charts near each group of diseases, showed the comparative prevalence of each of these diseases in different countries and the influence of the decrease in the morbidity and mortality of them during recent years and by the methods of treatment employed in later times.

The German Workingmen's Insurance. The handsomely bound catalogue by Dr. Klein for the special exhibition, intended to in-

Digitized by Google

form the visitor of the work accomplished by the German Workingmen's Insurance, covering 107 pages, and filled with but the briefest mention of the objects exhibited, will give an idea of the wealth of the material found in Hall 10, presided over by Dr. jur. et. med. Kaufmann and Geh. Rat. Weger. The Workingmen's Insurance, instituted in 1885 by Emperor Wilhelm I, pursues the object of protecting the workingmen against the unavoidable dangers of their calling. Every working man and woman within the boundaries of Imperial Germany, is, regardless of nationality, legally insured against disease, accident, invalidity and old age. The sums of money thus contributed to the various workingmen's societies reach the limits of the incomprehensible. To mention only the sums contributed in this way during the year 1909:

Sickness Insurance	342,200,000	M.
Invalidity Insurance	189,029,000	
Accident Insurance	162,266,000	
Total	693,495,000	M. or
Daily	1,900,000	M.

The comprehensiveness of the machinery of the workingmen's insurance is beautifully illustrated in the picture of an oak and its effect on the whole body of working men is intended to be shown by a figure representing a working man, designed by Prof. Hosaeus, Berlin.

Light and Air, Dir. Dr. von Esmarch. This group deals with air and light of living rooms and their influence on man, animals and plants, and includes three subdivisions: (1) meteorology and climatology; (2) the hygiene of air and light; (3) the gas and smoke nuisance. The special catalogue by Dr. Paul Schreiber, a pamphlet of about 50 pages and a guide to the first subdivision, gives short descriptions of the exhibits, among which may be mentioned a large collection of instruments for research work in this department of science, contributed by the most important firms of Germany, England and France; it also explains the large number of charts showing the results of long years of observations with regard to the meteorological conditions prevailing on most every point on the earth's surface, explaining, likewise, the uses of the instruments by which the results of these observations were obtained. In the second subdivision the hygiene of air and light in

Digitized by Google

their influence on man is demonstratetd; likewise the effect of mountain climates on the composition of the blood. The bacterial content of the air as well as that of soot and dangerous gases is shown. In the third division the damage done to vegetation through the smoke from the chimneys of large factories is strikingly shown.

Hall 15 is devoted to:

School Hygiene and the Care of Youth. In no other department of hygiene, at the exposition, was the over-crowding of exhibits so bewildering as it was in this. This, if nothing else, must be allowed to signifiy the overwhelming importance which was attached to this branch of hygiene at the exposition. The two excellent catalogues and guides, the one published by Dr. Rietschel, Dresden, on the care of the nurseling, and the other, by Dr. H. Selter, Bonn, on the present state of school hygiene, describing in detail the large number of exhibits in this large hall must be referred to for obtaining an adequate notion of the comprehensiveness of this portion of the exhibition; no mere verbal description is equal to the subject.

Chemical Industry and Health, Hall 53, Director Dr. Lehmann, Würzburg. Under this group, a great variety of chemical substances, without the use of which it is nevertheless impossible to get along in these days but, which are dangerous to health, were shown, likewise those, the handling of which in no way hurts either those employed in the manufacture of them, or those that use them.

Occupational Hygiene and Statistics, Director Dr. Wutzdorff, Berlin. This group of exhibits was intended to show, not only, that the laborer can be protected in the pursuit of his calling and, regardless of whether engaged in mental work or in any industrial occupation, against their inevitable dangers but, also, to what extent and by what means and special devices such protection has already been accomplished.

The Imperial German Health Office, Berlin, has furnished a large number of statistical tables of the morbidity of different industries, showing also the influence of some of the protective measures put into operation. Caisson-disease, diseases incident to mining industries, iron-, lead- and zinc-industries, the smoke- and dust-nuisances with the various contrivances for avoiding them,

Digitized by Google

in actual operation, find ample illustration in this group. Large powerful ventilating plants driven by machinery, designed to remove dangerous gases or dust particles from where they are produced, were seen in constant operation.

The Protection and the Well-being of the Worker. Director Dr. ing. Hartmann, Berlin. This group was intended to throw light on the legal protection of the German laborer and to show how the state, community, society and single individuals had contributed to this end, each in their way. This kindly care and general regard for the well-being of the worker was nowhere better shown than in the model houses constructed or designed for housing either one or two families for working people and in which, within a modest area, everything could be arranged in such a way as to satisfy every need and every comfort and even pleasure. Models of houses for single men and women were shown where such people could live at very low cost, surrounded with every comfort and even luxury. Models of villages, formed by such model houses, were shown, the architectural and natural beauty of which were simply surprising enough to excite the envy of the better situated in the community.

Housing and Habitation—Group: Building of Cities. Hall 54. Dir. ing. Stuebben, Berlin. Numerous plans, pictures and models of cities, large and small, were shown in this group, interesting not alone to the architect but made equally intelligible to the layman. Methods for improving and modernizing old parts of the city as well as for building entirely new ones were shown and demonstrated. It was shown how old and narrow streets might be widened and how low and damp parts could be raised. The possibility of disposing and of arranging factories, parks, plans for gardens, promenades, playgrounds in such a way as to make them all conform to the laws of hygiene and sanitary living was shown. Attention to the immediate surroundings of a city, to the general appearance of a city as a part of a landscape, the question of the relation between income and rent are all shown in this group.

Illumination. Dir. Dr. Kruse Königsberg. This group shows, in the first place, a rich and very complete collection of the different means used and invented at different periods in history for illum-

Digitized by Google

inating purposes, from the simple oil lamp of the Romans up to the most brilliant electric illuminations. Every year has added not only new means for illumination but it has also improved the various burners and thus the utilization of the sources of light. Many different photometers are exhibited showing by what means and methods we may determine to what extent an illumination satisfies the hygienic limits placed on it. The influences exerted on the eyes by ultraviolet rays and of each of the different lights of the spectrum were demonstrated in a dark room.

The Cleaning of Cities. Dir. Dr. Schmidtmann, Marburg. This group of exhibits covered a square area of about 340 meters and showed working models of every conceivable method employed in the proper disposal of offal, both solid and liquid, from cities and towns, in actual operation, contributed from every city of importance of Germany. Every known mechanical, chemical and biological method of disposal could there be seen in actual operation. These demonstrations were supplemented by large pictures and tables, showing the results obtained with thes different methods.

Houses and Habitation. Dir. Prof. Chr. Nussbaum, Hanover. The steady increase in population, the change from agricultural to industrial occupations, the economic, moral and hygienic questions involved in overcrowding, have compelled a systematic investigation into the conditions of living in all our large cities, most everywhere but especially in the German empire. Some of the results of this work are shown in this group, which is especially devoted to small family houses and to showing how a one to six-family house may be built and provided with all the necessary comforts and satisfy all the other requirements, including interest and capital invested, besides producing an artistic effect when large collections of such houses are arranged with due regard to the landscape and the natural beauty of their surroundings. The exhibits consist in models showing typical examples of unhygienic ways of living and of the improvements that have been made during the last ten years and in which every possible requirement was taken into consideration.

The society "for the preservation and protection of the Home" of Saxony has had constructed several typical houses and furnished them completely, illustrating the achievements in this line of work during the past ten years.

Digitized by Google

Ventilation and Heating. Dir. Uber, Berlin. The exhibits belonging to this group consist of working models, intended to show the necessity for and the amount of air required by inhabited rooms. Ventilators, Ozonizers, Exhaust- and Supply-fans for buildings, ships, railroad cars could be seen in actual operation, also working models of air-, steam-, and hot-water-heating plants, supplemented by wall charts. The number of exhibits was 204.

Water Supply. Dir. Dr. Gärtner, Jena. This group gives, in the first place, and in the form of large wall charts, a birds-eye view of the gradual development of the different water-supply systems in use in most all parts of the world. It then shows some of the methods employed for calculating the probable requirements with regard to quantity of water by a given community. It next illustrates the nature of the preliminary work which is necessary to ascertain the quantity and the quality of the available ground water and the machinery of the various plants to be put into operation for either a central or an individual supply.

A large number of working models show the methods for improving an impure ground water; how iron, manganese and acids may be removed from it; how surface water may be stored and improved by filtration, ozonisation and by the addition of chemical substances. Models of plants showing the distribution of water from reservoirs into towns under the most hygienic conditions are also shown.

The group *Soil and Water* shows the physical, chemical and biological characteristics of the soil in their relations to water and disease and shows a collection of the latest apparatuses and instruments in use for determining the properties of water as well as those of the soil.

Burial Systems. Dir. Dr. Heim. This group exhibits every known method of burial, including cremation.

Clothing, Care of the Body, Children and Youth. Hall 55.

Clothing. Dir. Dr. Pfeiffer. A portion of this group of exhibits shows the results obtained from investigations into the properties of the tissues used for making clothes, while the other portion shows how they are actually used as coverings for the human body. Tables, instruments, and methods used in these investigations are shown. The permeability of the different tissues to air,

Digitized by Google

light, heat and water are shown and how their natural properties and characteristics are modified through the after treatment of these tissues in common use. A very thorough consideration is devoted to the dangerous fashions in vogue in the customary dresses of females. Tables, pictures, models and diapositives are employed to show, not so much the necessity for reform in outside clothing as that for furnishing suitable underclothing. An expert, Frl. Brinkmann, gives daily demonstrations on the hygienic uses of clothing for women. The hygienic shoe has not been forgotten.

Bathing. Dir. Dr. Brieger, Berlin. Bathing, formerly considered a rare luxury by some, has become a daily necessity to almost all classes of society within recent years. Besides securing bodily cleanliness, it aids the skin in resisting the dangerous influence of the unavoidable changes in atmospheric temperature. Pictures, plans, drawings and models of city bathing establishments are shown in this group. These popular resorts which have been extended to the smaller townships are provided not only with individual baths for bodily cleanliness but they are provided with large tanks for swimming, in winter and in summer and the necessary care for keeping the water clean and unobjectionable from a sanitary point of view.

Alcoholismus. Dr. von Gruber, München. The alcohol problem has for a number of years received the most serious study and attention throughout the German empire. Graphic tables, wall charts, books, pictures, preparations, models, etc., distributed through the nine subdivisions, into which this group is divided, show the present state of the question and the results of research work done in different countries.

One of the most striking representations on the dangers of alcohol are: the clinical experiments recorded on the influence of alcohol on muscle, nerve, heart's action; the degeneration of vitally important organs in drunkards; specific alcoholic diseases; the increased danger from accidents, morbidity, mortality and crime; diminished bodily resistance; degeneration of the race. A guide, by Dr. R. Burckhardt, must be referred to for the details of this very impressive exhibit.

Race Hygiene. Dir. Dr. von Gruber, München. Race hygiene has for the first time, found a place in hygienic exhibi-

Digitized by Google

tions. It had for its object the calling of the general attention of the public to the immense importance of heredity upon the prosperity or the degeneracy of the race, upon the inherited constitution which, when strong, bids defiance to unfavorable conditions, when weak, succombs in spite of the most careful nursing. The public at large must learn to appreciate the necessity for exercising a reasonable amount of care in the selection of a life partner.

With the aid of 200 tables, charts and colored natural objects, the laws of heredity were demonstrated and it was shown how, through the continuity of germ plasm, in plants and animals, different characteristics are transmitted from one generation to another. The different kinds of variability, as fluctuation and mutation, are made clear. The laws established by Mendel, together with the results of the latest experiments on the transmission through heredity of acquired characters and of disease, have received due regard.

Attention is also devoted to the question as to whether the nations of the highest culture are increasingly degenerating. The dying out of certain distinguished families and the decrease in numbers of those fit for military service is taken into account. The special toxic influence of alcohol and syphilis on germ plasm as well as the influence on the race of inbreeding and race-crossing is considered. Finally, the significance of the intentional prevention of conception, or the Neomalthusiamismus on the race problem is shown. For further details we must refer to the very comprehensive guide, published by Max v. Gruber and Ernst Rudin, for use in this group of exhibits. This book possesses a value of its own, beyond its mere usefulness as a guide through the momentous group of exhibits.

Foods, Condiments and Nutrition. Hall 56. Dir. Dr. Kör.ig, Münster i. W. The center of this building or hall which is intended to illustrate and render intelligible the difficult subject of nutrition, is occupied by a long, broad table having the form of a horseshoe. Upon this table are placed a large number of original preparations in bottles, representing the entire domain of physiological chemistry, systematically arranged by Prof. Abderhalden of Berlin. By following this systematic arrangement of prepara-

Digitized by Google

tions from beginning to end, it is easy to obtain a complete picture of plant and animal metabolism and to trace the circulation of nutritive material with the changes it undergoes throughout living nature. We begin with carbon dioxid, water, salts and saltpeter and trace the different transformations occurring in plants from simple formaldehyde through carbohydrates, fats, phosphatids, albumins to nucleoproteids, the essential oils and ferments. We are shown how plants metabolize sugar to cellulose, etc. A small group of herbivorous animals, rabbit, mole and pigeon, is to show the dependence of the animal on the vegetable kingdom. Even carnivorous animals live on herbivorous animals, thus depending indirectly on the vegetable kingdom for their subsistence. Then follow all the different products of metabolism in the animal body in an unbroken series, from the time they enter the body to the time they leave it; their cleavage products and the products of synthesis occurring within the animal organism are shown.

The latest apparatuses used in the above investigations are shown, their uses are explained; respiration-apparatuses, calorimeters of the latest design are exhibited. Against the walls surrounding this group of exhibits, arranged on shelves in glass cases, we find a collection of preparations showing in a clear and unmistakable manner the amounts of albumins, fats, carbohydrates, water and salts which are contained in one kilogram of the different food stuffs.

Then follow exhibits showing (1) the nutrient and calorific value of food substances; (2) rations for adults, according to occupation; (3) rations pro kilo of body-weight; (4) influence of food on metabolism; (5) influence of temperature on metabolism; (6) the loss of carbon and water under hard work, rest and sleep; (7) protein metabolism of adults doing athletic exercises (Chittenden, Langworthy).

Meat Supply. Dir. Dr. Ostertag. A large collection of apparatuses used in killing meat-animals is exhibited; the relative value of different parts of the animal is shown by charts. The preparation and conservation of meats are shown in all possible demonstrable forms. The dangers of contaminations and the utility of systematic inspections and examinations of meat and meat products are demonstrated. The dangerous trichina at work

Digitized by Google

and in the living state is shown in an adjoining dark room. A great variety of eggs is shown and the methods of telling a fresh from an old egg is demonstrated.

Milk Supply. Dir. Dr. Kossel. Preparations, drawings and charts picture the normal condition of the milk glands, from an anatomical and physiological point of view, the properties and composition of the milk of the different animals and the conditions influencing both the amount and the quality of the milk. The methods of milking and the importance of cleanliness in milking have received special consideration. Bacterial life in milk is abundantly illustrated on colored charts. The usual methods of sterilizing and pasteurizing milk, and certain models of central milk-supply stations are shown. All the different methods of the chemical, biological, physical and bacteriological examinations of milk for hygienic purposes are shown in a laboratory furnished by the Imperial German Health Office, Berlin.

Vegetable Foodstuffs and Condiments. Dir. Dr. Kerp, Berlin. In this group are exhibited the most important foodstuffs of vegetable origin, their preparation from raw material until ready to be eaten is demonstrated. A laboratory serves to demonstrate the methods employed in testing the material for its purity. A very large and complete collection of all sorts of condiments and food articles of vegetable origin is shown, such as tobacco, spices, coffee, cocoa, tea, mushrooms, fats and oils. Models of different types of flour mills and bakeovens are also shown.

HYGIENE OF TRAFFIC.

Traffic on Land. (Street and Railways), Dir. Dr. ing. Wehrmann, Berlin.

A number of statistical tables gives us an account of the diseases and accidents occurring among travelers and personnel employed on rail- and other traffic-roads. A further set of pictures and models of natural size, shows us the different forms of traffic roads as they should be built in order to respond to the modern requirements of hygiene, and calculated to reduce possible accidents to a minimum. A large space is devoted to showing the methods of securing the comfort and happiness of the em-

Digitized by Google

ployed, during rest periods and when they are off duty. A number of drawings, photographs and models show their sleeping apartments, their dining rooms, coffee kitchens, bathing places, canteens, their clothes drying establishment, sanatoriums and homes for invalids.

Traffic on Water by Ships. Dir. Dr. Tjaden, Bremen. This group is divided into traffic at sea, in port and of emigrants. Models of present day passenger ships, showing interior arrangements, methods of heating, ventilating, and illuminating them, contrasting strongly with those of old sailing ships, in which heating was accomplished by stoves and lighting with candles. The present comfortable living quarters for both the passengers and the ships' crews are well shown.

Port-hygiene treats of the measures taken as to quarantine and the prevention of importing infectious diseases, of the methods employed in preventing contamination of harbor water, etc. The group also shows pictures and gives models of seamen's homes and what the measures are that are to be taken for the proper, sanitary and humane protection of emigrants.

In hall 36 there was exhibited a special car for the transport of living fish, completely equipped and provided with a benzine motor, a pump, a complete illuminating plant, a dynamo, etc. There was also a completely equipped hospital car for use in war time.

Special halls there were for demonstrating the care of the sick, the insane, the crippled and the imprisoned. Military, naval and colonial hygiene found ample accommodations in Hall 38. The illustrations, statistical tables, photos, curves and numerous models reaching into every detail of hygiene in these special departments were shown.

SPORT DIVISION.

The organization of the sport division of the International Hygiene Exposition, Dresden, marks an important epoch in the history of bodily exercises. A rigid classification of sports according to physiological principles has, for the first time, been rigidly carried out. The scientific committee is represented by such men as Prof. Zuntz, Berlin. Prof. Schmidt, Bonn, and E. von Schencken-

Digitized by Google

dorff, Görlitz and many other eminent and learned men. The so-called German Sport Committee stands under the protectorate of the German Committee of Olympic Games: Exz. von Podbielski, U. von Oerrtzen and Dr. Martin, presidents, and with their chairmen and secretaries of the large number of German societies as members. The real working committee is the Organization Committee under the presidency of Dr. Becker. The special divisions under this organization committee are: academies, fishing, automobile and motor sports, aviation, boxing, ice- and snow-sports, fencing, women-sports, golf, hockey, chase and shooting, bowling, lawn-tennis, military wheel- and field-riding sports, roller skating, rowing, swimming, sailing, gymnastics and gymnastic games, wandering and mountain climbing. The members of the individual groups were selected from and by the associations distributed over the whole country. From the above an idea may be gained of the comprehensiveness of the organization. The sport exposition was divided into the following subdivisions

INTERNATIONAL ARMY BAGGAGE MARCHING MATCH.

SPORTS IN THE ARMY.

1. Special gymnastic exhibitions by the different unions.
2. Scientific division.
3. Industrial sport division.
4. Sport places and sport plants.
5. Sport laboratory and library.
6. Tournaments.

In the sport laboratory were made:

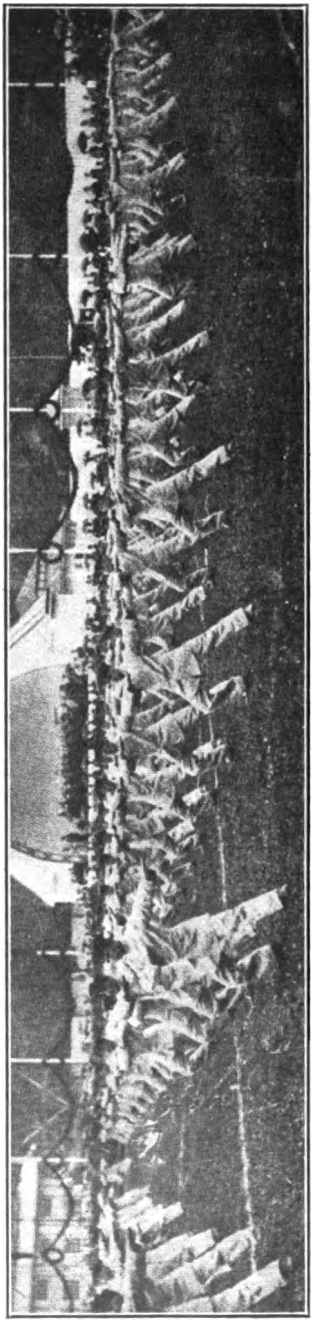
Digitized by Google

1. Anthropometric and ergographic investigations.
2. Electrocardiographic examinations.
3. Röentgen ray observations.
4. Examinations on the chemistry and mechanics of respiration.
5. Microscopic and chemico-physiological investigations.

A dark room and a library completed the laboratory. A large number of university men had voluntarily contributed their services to the success of the work. The object of this laboratory was to furnish material for the laying of a foundation for a scientific sport-physiology and hygiene. From results already obtained in this laboratory, some of which I had an opportunity of examining, I am convinced of the fact, that a beginning has at last been made for the scientific elaboration of the proper principles upon which alone, the different forms of exercise may be made useful and beneficial instead of hurtful and dangerous as most of them are now. German sport is intended to remain an amateur-sport; it is not to be a wild record breaking mania and struggle for money premiums, to satisfy the overwrought ambitious few, it is not to satisfy the curious, wishing to see celebrated champions. The time-honored title of sportsman is to be denied to those who witness a tournament simply because they want to bet on the results. Professionals who are in it for what they can get out of it, are not to be called sportsmen. The German sportsman is to remain a gentleman, active without being greedy for gain. The pleasure in tournaments, a national characteristic, is not to be discouraged but it is not to be regarded as the highest aim of sport. A sentiment for out-of-door sport is to reach the entire nation; it is to bring the individual citizen from his office and workshop out under the influence of God's sunlit nature, to enable him to stretch his limbs and to fill his lungs with oxygen and his mind with the beauties of nature.

Manly virtue, endurance, and resistance are to be placed above calcified arteries, enlargements of hearts and collapse. To this program the sport division of the exposition has remained true throughout.

Digitized by Google



1500 MEN PICKED FROM 2 SAXON ARMY CORPS PROVIDE A GIGANTIC SPECTACLE.

Digitized by Google

The Significance of the Hall, Marked in Large Golden Letters, "Der Mensch."

The conventional attitude in fashionable society of displaying an unconscious ignorance with reference to everything concerning the structure and functions of the different organs of the human body, is gradually loosing the character of its traditional respectability. The forces at present operative in shaping the destinies of human races have rendered such a display of lack of knowledge culpable to a degree and its further cultivation a crime. The most formidable governing power in any free and enlightened country being admittedly based upon a sound public opinion, itself a function of the degree of the general health of its citizens, it clearly becomes the duty of every individual to contribute to this constitutional asset of his commonwealth, in proportion to his personal intelligence and educational standing, as the most valued tax that can be levied on his citizenship, for it seems pretty well acknowledged that the future will belong to the nation possessing the greatest number of strong, healthy and physically as well as mentally resistent individuals.

As a contribution to the methodology of disseminating such knowledge among the people in the most effectual manner, the hall of popular hygiene at Dresden stands preëminent in recent times. Structure and functions of the human body were never before presented in a more easily assimilable form. The conditions necessary for the preservation of health and for the prevention of disease were never before set forth in so easily intelligible a manner. Neither expense nor pains had been spared to render clear to the understanding the mysteries of health and disease. All the available arts and sciences had been pressed into service of this great object. The systematic representation of the subject was pursued with great consequence. An introductory lecture was given in the great hall every morning. A culture of living protozoa was projected on the screen in an adjoining dark room, their life histories explained. In another dark room, the production of antibodies in the blood, excited by the action of bacteria was shown on the screen. Then, the life cycle of the silk worm and the preparation of silk was similarly shown on the screen. Over one hundred microscopes, all in the most

Digitized by Google

perfect working order, and under a splendid system of illumination served to demonstrate monocellular organisms, mitotic cell-division, fertilization and embryonic development as well as the adult cellular structure of every organ in the human body.

The gradual development from a single cell of some of the lower animals as well as intra-uterine development of the human embryo was beautifully shown by a series of embryos rendered transparent by the method of Spateholz. A splendid series of wax and plaster-models in glass cases greatly assisted, by attached mechanical devices helped the understanding of their structure and function.

The adult human body was, in its entirety and in parts, shown in the natural state, in the form of models, paintings, lumières and drawings, all displayed in the most artistic form and executed by artists of the first order. The high walls and high windows admitting a flood of light and rendering inspection thorough and easy. Mechanical devices were in operation for showing contraction of muscles; for explaining the action of the nervous system and the difference between mere reflex action and an action involving the coöperation of the higher nerve centres; for showing the circulation of the blood by a system of capillary glass tubes and the amount of work done by the heart; for demonstrating the function of the special senses and the mechanism of respiration and of voice- and sound production. The subject of nutrition was given a prominent place. The more elementary chemical substances constituting the principal natural food products were shown in glass bottles and, further shown by charts to which the percentage number of each elementary substance was attached, with daily amounts of each required by man. Against a wall, there were arranged the quantities of water, salts, proteids, fats and carbohydrates which a man consumed in a year and in the form of natural foodstuffs. At another table we were introduced into the mysteries of food adulteration and shown how cinnamon was made out of brick dust, pepper out of powdered linseed oil-cake and strawberry syrup without strawberries. The toxic substances contained in alcohol, tea, coffee and tobacco and their influences on longevity and human happiness were all exhibited in a most tangible form. Table and kitchen utensils of the most varied composition and form were shown in separate cases.

Digitized by Google

A special group was devoted to housing, showing the best methods of heating, ventilating, illuminating and cleaning our dwellings.

In the group of occupational hygiene the visitor was shown the dangerous influences to which workmen are exposed in the different factories and the beneficial appliances recently devised and put into operation to prevent them.

The visitor was thus prepared to pass into the section in which the common infectious diseases of man were shown, how they originate and how they are best prevented, at the same time, exhibiting busts of the most noted men of science who have contributed most to our knowledge in this department of sanitation.

A most noteworthy feature also was the development, care and best mode of nutrition of the nurseling; it was here shown that the care for the child must begin before birth and must extend to the mother. Of great interest were the demonstrations given on the subject of nutrition of the nurselings; their weight and size, the treatment of the diseases of the child, the care of the skin, the duration of sleep, etc.

A most telling story is also told of the subject of dental hygiene.

The department of the general care of the body to be observed during childhood, adult manhood and old age are most impressive and so plainly told and shown as never to be forgotten.

When we add to all this that daily demonstrations in every one of these groups were given by the most eminent men of science, engaged for the whole time of the exposition, it is easy to explain the ever increasing number of visitors to this hall and the fact that, towards the last part of the exposition, the hall had to be opened at night, on special admission tickets, sold, to satisfy this ever increasing thirst for knowledge. It simply had become thoroughly recognized that it was within the capacity of every man and woman to accumulate, in this hall, sufficient knowledge of the laws of health, to provide for oneself that modicum of health which forms the most solid foundations of all human happiness. It had become realized as never before that health means bodily, mental and moral perfection, its cultivation resulting in strength, beauty and happiness.

Digitized by Google

FOREIGN PAVILIONS.

Amsterdam. The city of Amsterdam had contributed valuable exhibits. The most interesting from the hygienic viewpoint were undoubtedly those of the city health office, consisting in tables, curves and microphotographs, the results of the chemical and bacteriological examinations of food-articles and condiments; the control of infectious diseases and the ways and means employed in fighting their spread. Most interesting, also, were the exhibits demonstrating the difficulties experienced in Amsterdam with regard to its water-supply and the ingenious methods employed by its people to overcome them.

Brazil. Those unacquainted with the amount and the high character of work done, in recent years, in Brazil, by the public health authorities there, were surprised to see the wonderful exhibits in the Brazilian pavilion and to witness the daily Kinematographic demonstrations of the actual field work done in that country, to fight yellow fever and other infectious diseases. The sanitary service of Brazil seems to be well organized and, the work is done by the most improved methods and, with the use of modern instruments. Completely equipped laboratories of bacteriology, chemistry and pathology are at the command of the sanatarian. Thus, under the sanitary supervision of Dr. Oswaldo Cruz, now continued by that of Dr. Figueiredo de Vaconcellos, the pioneer leaders in this work, Rio de Janeiro is now free from yellow fever and one of the healthiest cities on the Atlantic coast of South America.

China. The government of China, through the erection of its beautiful pavilion, filled with exhibits covering all the present departments of hygiene in the Chinese Empire, has succeeded in demonstrating its interest in and desire for the introduction of hygienic methods into the country. The members of the Chinese Commission have been instructed by their government to study hygiene and sanitation in all the European states, with the view of applying these methods to the needs of the people inhabiting the Chinese Empire. The opportunities for the beginning of such a study could never have been more advantageous than they were at the Exposition at Dresden.

England. Under the high protectorate of H. R. H. Princess

Digitized by Google

Christian of Schleswig-Holstein and the presidency of the Right Hon., The Lord Mayor of London, a British National Committee, numbering about 250 members, was formed at the eleventh hour, for the purpose of giving the British people an opportunity of giving expression of their sympathy with the exhibition and its high aims, by contributing their exhibits and, thus, largely adding to the completeness of the results of the undertaking. Being an almost daily visitor at the British Pavilion for several weeks and,

GREAT BRITAIN: COMPLETE, SYSTEMATIC SURVEY OF PUBLIC AND PRIVATE CARE OF INFANTS AND MOTHERS, SCHOOL, MILITARY AND TROPICAL HYGIENE. INSTRUCTIVE PRESENTATIONS OF THE WELL-KNOWN ENGLISH HOUSING SYSTEM WITH MODEL ONE FAMILY HOUSES AND WORKINGMEN'S DWELLINGS.

attending the daily demonstrations by Dr. Armit, I can but express my great admiration at the completeness of the exhibit gotten up in so short a time, and covering most every department in hygiene. A pavilion several times its size could scarcely have held any more than did this small pavilion of Great Britain. Much of this success of which the British people may feel proud, indeed,

Digitized by Google

is no doubt due to the personal efforts of Sir Thomas Barlow, The Right Honorable Lord Ilkeston, Prof. G. Sims Woodhead, the executive committee and, to the untiring energy of its skilful and learned executive secretary and demonstrator, H. W. Armit.

France. The pavilion erected by the government of the Republic of France, was one, characteristic of 18th century French architecture, designed by M. Tronchet, the architect-in-chief of the French government. Beautiful in construction and appearance it was further favored by location.

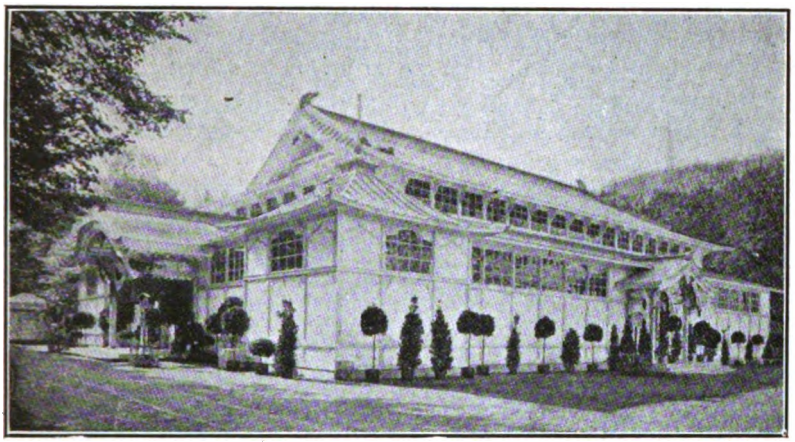
The French executive committee, of which Prof. Fuster was chairman and Drs. Calmette and Landouzy members, had been obliged to adhere to a program of exhibiting none but objects of an administrative and philanthropic character. If industrial exhibits were, nevertheless, accorded a place, they only served the purposes of demonstrating the progress made in technique employed in vaccination, disinfection, canalization, sterilization and the methods of water supply.

The bulk of the exhibits consisted in collections of drawings, paintings, photos, models, relief-maps, charts, showing the achievement of French scientists along hygienic and philanthropic lines. A most creditable as well as a most beautifully arranged exhibit.

Japan. The Pavilion of Japan, planned by Dr. ing. C. Ito of Tokio and executed by Alfred Pusch, Dresden, was characteristic of the country, simple, impressive, artistic, economical and well adapted to its purposes. The commission, sent by Japan, consisted of eight representatives of the government, famous for the work they had done in their respective lines and one of the best known among which was Prof. Dr. Miyajima of the Imperial Institute for Infectious Diseases of Tokio.

The exhibits covered most every department of hygiene making this exhibition one of the completest in this respect among foreign pavilions. A fine model of Fujiama greeted the visitor on entering. The beauties of the country, its climate were abundantly shown by models, drawings, pastels, photos, etc. The hygiene of nutrition, of clothing, the methods of housing and living, education of children in schools and homes, the care of the sick, safety devices, the prevention of epidemics, the history of development of medical sciences in the country, all had received careful atten-

Digitized by Google



JAPANESE PAVILION, IN WHICH THE JAPANESE GOVERNMENT SHOW THEIR HIGHLY DEVELOPED HYGIENIC ARRANGEMENTS IN A MOST COMPREHENSIVE MANNER.

tion. But most impressive, if not positively inspiring, were the exhibits and background paintings showing the work of the sanitary corps while an action was in progress as well as that of the army field kitchen.

ITALY: STATE PAVILION. INTERESTING MATERIAL CONCERNING MODEL INSTITUTIONS FOR FIGHTING CHOLERA AND MALARIA.

A special pavilion "Formosa" under the special care of Dr. Takaki, served to show the great sanitary improvements made by the government of Japan, since it had taken possession of that island.

Italy. In spite of the fact that Italy, during 1911, had to supply

Digitized by Google

three different expositions of its own, namely: Rome, Turin, and Florence, it found the means of erecting and supplying a pavilion of its own in Dresden. The six groups into which the exhibits were divided were arranged in very good taste, giving and making a rather artistic impression. The exhibits were for the most part statistical and graphic.

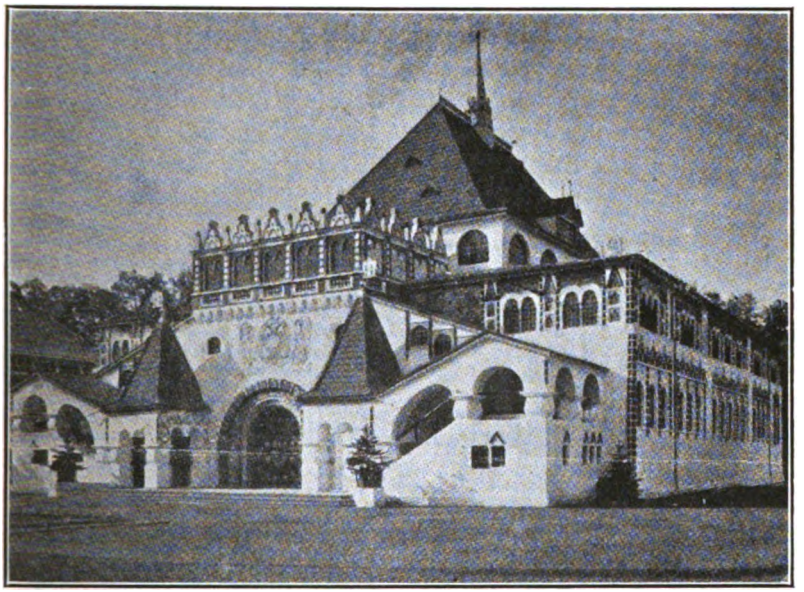
AUSTRIA: STATE PAVILION, CHIEFLY DEVOTED TO THE CARE OF THE HEALTH AND HUMANITY IN THE DIFFERENT CROWN-LANDS, SEPARATE EXHIBIT OF THE CITY OF VIENNA WITH ITS MODEL ORGANISATIONS. IN A SPECIAL BUILDING IS ABUNDANT MATERIAL CONCERNING THE WIDELY FAMED HEALTH RESORTS OF THE AUSTRIAN MONARCHY. MOVING PICTURE EXHIBITS.

Austria. Austria's pavilion was one of the largest and perhaps the richest of all foreign pavilions erected at the exposition. It represented a "multum in parvo" of the whole subject of hygiene and no simple description could do it justice, we must refer to the special catalogue and guide, published by the administration for a detailed list of the exhibits and of the distinguished names of their contributors, as well as the corps of managers who had charge of this pavilion.

Russia. Russia had been one of the first foreign countries de-

Digitized by Google

claring its readiness to erect a special pavilion at Dresden. The pavilion is a two-story structure designed by Prof. Pokrowsky, St. Petersburg, and forms perhaps the largest foreign pavilion. As regards the contents, we can only repeat what was said of the Austrian pavilion, namely, that they cover the whole subject of hygiene.



RUSSIA: STATE PAVILION A BRIGHT COLOURED BUILDING WITH A HIGHLY INSTRUCTIVE PRESENTATION OF THE CELEBRATED ZEMSTVO-ORGANISATIONS; CONTAINS A COMPLETE HYGIENIC MUSEUM OF GREAT RICHNESS. IN THE CENTRE RISES AN ENORMOUS STATUE, REPRESENTING "RUSSIA" TOWERING OVER THE WHOLE.

Switzerland. The exhibitions in the Swiss pavilion were divided into ten chief and three special groups, extending over the entire field of hygiene. These exhibits serve to place the small republic in the front rank of hygienic countries and reflect the greatest credit on its national committee of 100 and its executive committee of which Dr. H. Carrière, W. Kolle, Ost and Schaffer were members. Of quite special interest to military men, was a new and quite well adapted wheeled army field-litter.

Spain. Spain had erected a neat looking pavilion, the exhibits consisting for the most part of graphic and pictorial wall charts,

Digitized by Google

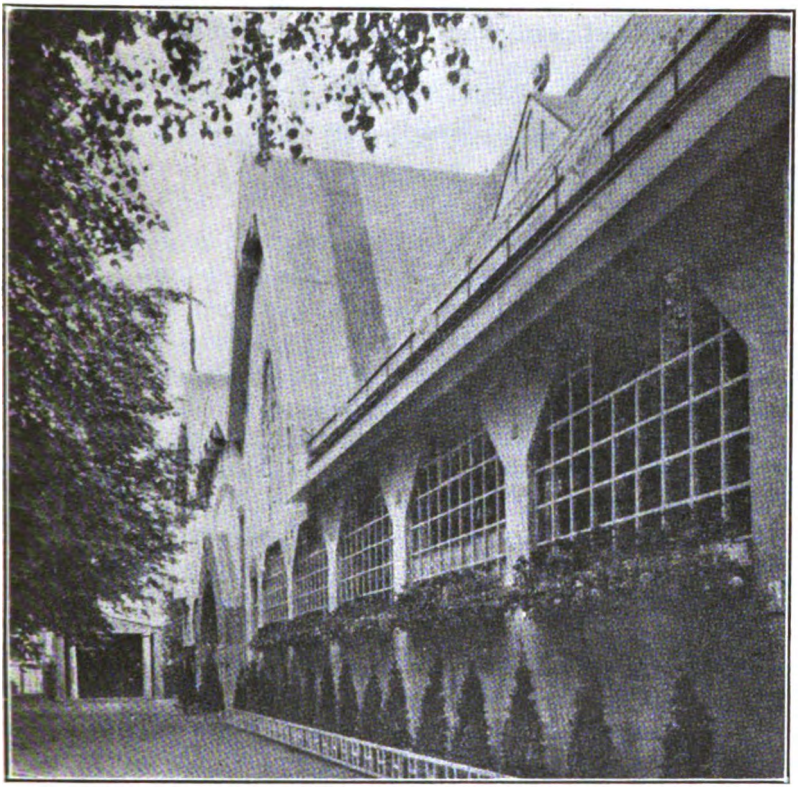
statistical tables, etc., very artistically arranged. Drs. Pulido and Chicote, the Spanish representatives, had received their commissions too late to enable them to collect a more representative exhibit. The exhibits nevertheless showed that Spain is awake to the progress in all departments of hygiene, plainly demonstrating its keen interest by its participation in the Exposition in Dresden.

Hungary. The visitor to the exposition would hardly have looked for a special pavilion representing Hungary, after having seen the one erected by Austria. But so great was the interest of the Hungarian government in the exposition and its high aims at Dresden, so much had been done there in recent years to improve the hygienic conditions of its people and its institutions

SWITZERLAND: GRACEFUL PAVILION BUILT IN THE SWISS STYLE, IN WHICH THE SWISS FEDERAL STATES EXHIBIT THE HYGIENIC INSTALLATIONS OF SWITZERLAND.

and, so different from those of other countries were the hygienic requirements of Hungary, that the Hungarian exhibits, many of which being quite original, aroused and sustained the interest which they so well deserved. The special catalogue and guide, by Prof. Emil von Grosz, covering 48 pages, must be allowed to speak for the rich collection seen in this pavilion. Special sympathy was aroused with the visitor on the subject of those institutions which were devoted to the governmental care of abandoned children. The Hungarian people believe that every abandoned child has a right to be cared for by the community.

Digitized by Google



HUNGARY: A STATE PAVILION WHICH PRESENTS A FAITHFUL PICTURE OF THE PRESENT STATUS OF PUBLIC HYGIENE IN HUNGARY; THE SANITARY CONDITIONS OF THE CAPITAL OF THE LAND ARE TREATED IN SPECIAL DETAIL, AS WELL AS THE VAST ORGANISATION FOR THE CARE OF INFANTS AND YOUTH.

United States. If absence, ever before, was conspicuous, it was the absence of a United States pavilion at the Exposition at Dresden, 1911. The "humiliating blush of shame" anticipated in my letter to the American Public Health Association (*Am. Jour. of Public Hygiene,* Nov., 1910, p. 858) could be seen on the face of every American at the exposition and, realizing the gravity of the situation. While the flags of every civilized nation could be seen floating merrily to the breezes, the stars and stripes were missing. The humanitarian eye among its stars played no part in, had no sympathy with, no contributions to offer for this most Christian endeavor to raise the hygienic standard among the

Digitized by Google

nations of the world, so fundamental to international happiness and international peace which we so loudly acclaim.

While the real cause may perhaps never become known, the stain, created by this demonstration of indifference, will remain a lasting reproach to the American people, especially, its public health officers.

Digitized by Google

THE MISSION OF THE AMBULANCE COMPANY.

By First Lieutenant Mahlon Ashford, Medical Corps, U. S. Army.

In an article in the April edition of The Military Surgeon, Major Paul F. Straub emphasizes the need by the Medical Department of the Army of more thorough and systematic field training; and in support of his statement refers to the official report of the Inspector General of the Army for the year 1910.* The justice of this charge is readily appreciated by many medical officers. Indeed there has been felt for some time the desirability of more intimate practical knowledge of the divisional field sanitary units. While the Medical Departments of the Army and of the affiliated state organizations have progressed immeasurably in the past decade; it nevertheless is manifest that the corps does not undertake to refute the charge of inadequate training for field service. Why should this be so?

Until very recently, at least, there has been an appreciable number of medical officers and enlisted men of the hospital corps, who have had slight, if any, experience with large bodies of troops under field conditions. There are probably even at this day a number of officers and men of the Medical Department who have never seen a complete field hospital or ambulance company; who have never participated in a large maneuver camp; and whose knowledge of modern sanitary service has been restricted perforce to reading the experience of others more fortunate. This deplorable condition exists because the Medical Department has been handicapped by a lack of officers and men; lack of sufficient funds and lack of control of transportation to such an extent that only occasionally could sanitary units be assembled; and because, when thus assembled, the number of officers and men available for participation and observation has been restricted by the routine requirements of the service in garrison and other duties.

If a lack of adequate field instruction has existed in the com-

*"The Training of Sanitary Troops," Major Paul Straub, Medical Corps.

Digitized by Google

paratively small and presumably highly trained body of men constituting the Medical Department of the regular establishment, how sadly and immeasurably must these difficulties have impeded the progress of field service instruction among many of the state organizations!

A brief mental retrospection of a number of maneuver camps recalls forcibly the restrictions and difficulties under which not only the state but the national Medical Department has labored. There has been invariably a lack of officers, men, or transportation to render complete even one single divisional field sanitary unit—the single exception prior to the present year of Texan Border Maneuvers having been the summer maneuver camps for instruction of medical officers held in the year 1909.

It is true that field hospital sections have appeared at all recent maneuver camps and that the personnel and equipment of ambulance companies have also been supplied to such camps, but the full transportation for the latter has, with the excepted instances above noted, ever been lacking in some measure if not altogether.

Such handicaps to proper instruction in field work have often formulated the following questions:

"Why should not the Medical Department have its ambulance companies with complete personnel, equipment and transportation."

"Are not such companies entitled to ambulance wagons, travois, riding, draught and pack animals if they are to be constantly prepared for special and vital service?

"Would it be very much less rational to supply a battery of field artillery with stationary field pieces and steedless gun carriages requiring this command to acquire a proficiency in the management of their weapons and assuring them that in the event of war, animals would be provided which, in course of time, they could learn to care for and properly control?"

This argument would be regarded as reduced to utter absurdity were it carried one step further in the analogy by the suggestion that the cavalry arm be dismounted in time of peace—thus saving the enormous cost of maintenance of some 15,000 horses. It can, nevertheless, only be in a degree less absurd to deny animals to companies requiring them in the Medical Department than to deny them to other mounted organizations. Moreover, the only

Digitized by Google

rational cause for the supply of animals to one force and their denial to the other must be that in the case in which they are not supplied, the organization is either of negligible importance or its training in such service is needless.

Is the training of ambulance companies needless?

The Inspector General incorporates in his report upon the Medical Department for 1910 the following:

"The medical field training is not up to the standard and—more attention should be given to the duties of the Medical Corps in campaign work, as preparedness for war is of the first importance."

For various considerations it seems rational to conclude that the further attention required of the Medical Department to its duties in campaign work can not be directed to any branch of field instruction more profitable in preparation for war than the ambulance company.

In the first place, the field hospital and regimental field services demand less knowledge of a character at variance with the usual garrison duty and routine garrison and field instruction of officer and enlisted man. The ambulance company on the contrary is a new unit and therefore presents unsolved problems in that it requires a number of duties quite foreign to those usually encountered by the medical officer. While the officer is thus confronted by novel and perplexing responsibilities, the scope of work embraced in the duties of the enlisted personnel of an ambulance company includes every variety of field instruction and experience.

Moreover, this sanitary unit must become in active field service the main reliance of the army in that most imperative and difficult problem of the evacuation of sick and wounded. The training of these sanitary units may therefore be regarded as needful if the observation of inspecting officers and the rational deductions from these observations are worthy of acceptance. The alternative now presents itself in this question:

"Are the duties to be performed by an ambulance company in time of war of so little importance that these organizations may safely be regarded as of negligible importance in time of peace?"

Throughout the ages the reply to this interrogation has invariably been an instant and decisive affirmation. Not until the present time have even sanitary officers or other humanitarians con-

Digitized by Google

ceived of a different answer. The warrior expecting himself to remain impassive in the face of death and its tortures has ever remained oblivious to the importance of measures of foresight and provision for the care of the unfortunate. Though he might be the first to pay the bitter penalty of his devotion, the soldier has never ceased to worship at the shrine of Military Necessity. The same zeal, heroic and yet so fallacious, has taken its terrible toll in the past centuries from commanders, who have deemed it puerile to consider the health of their command when the slightest detail of the military problem was also involved.

Fortunately for the sufferers, Military Necessity, herself, in the scheme of modern warfare demands not only the preservation of the health of a command, but also an efficient care of the wounded. In the War of the Secession, the Union generals complained bitterly of the hindrance of wounded, since these constituted a serious burden and impediment in pursuing military advantage gained in serious engagements. Because of the lack of an efficient system of evacuation of wounded, the entire army became nurses and litter bearers. Not until a thoroughly systematized ambulance organization had been perfected in General McClellan's Army by Major Letterman of the Medical Department did the Union commanders find themselves freed of this encumbrance, which had proven destructive to the discipline and morale of the troops and ruinous to the military plans of the army.

Throughout history is heard the same story of the difficulties and failures in the transportation of the wounded after battle. The horror of the sad picture has ever been recognized, but the military importance of its prevention by timely provision is only now dawning upon the world. Skillful physicians and surgeons and an abundance of medical supplies are unavailing if proper means for the recovery and transportation of the wounded are lacking. This has been the link to which so little foresight has been directed; which has so frequently been deficient or altogether missing; and the failure of which has resulted so disastrously for the welfare of the army, the lives of the wounded and the reputation of the medical department. There can not be the slightest doubt that the existence at the outset of the Civil or any other great war of a thoroughly organized ambulance system for the evacuation of sick and wounded would have repaid ten-thousandfold the cost of its organization and maintenance in the increased

Digitized by Google

efficiency of its armies and the saving of needless suffering and death. It cannot, therefore, be held as irrational or extravagant or ill-advised in time of peace to employ every means within our power to perfect this system and to guard this vulnerable, yet vital, point.

Granting then the necessity for these important sanitary units, the problem of their source and instruction at once arises. It is presumed that both for national and state organizations there should be permanent ambulance companies in which officers and men may become trained in field duty of this character.

The source and plans for these units for the regular establishment must rest upon such recommendations as may be made by the head of the Medical Department. From the words of Major Straub, referred to at the beginning of this article, it seems possible that it is the intention of the Surgeon General to utilize the present companies of instruction, hospital corps, for this purpose.

For the national guard the problem must be met in each state according to local conditions and needs. It is, of course, not conceivable with present limitations that ambulance companies with full transportation facilities be constantly maintained by each state organization. Nevertheless ambulance companies should be organized in every state in the proper ratio to the enlisted line strength with full complement of officers and men and complete equipment save that of animals and perhaps ambulances. At maneuver times, the animals may be hired and the regimental ambulances assembled. The larger cities can certainly supply the enlisted personnel of seventy men for such a unit, whose members will then be so geographically located as to permit the frequent assembly of the organization for instruction. In fact such a scheme exists in many state organizations at the present time.

When such companies have been established, what will be the possibilities for instruction?

One need merely consider the functions of these formations in time of hostilities to reply to this interrogation.

For the fulfillment of its mission, it is essential that the company officers be thoroughly conversant with the details of control and supply of the enlisted personnel, and the great number of casuals, e. g., wounded, which may fall temporarily under their care. They should further know the basic principles of modern

Digitized by Google

warfare; battle dispositions; map reading; the issue and interpretation of orders; ballistics, et cetera. The importance of their office and the necessity for energetic and faithful service must be acutely realized. Since in the uncertainty of battle they may at any moment be thrown upon their own resources, they should therefore be proficient in the difficult art of deciding upon a suitable time and place for the establishment of dressing stations; bearing in mind the many and varied factors which enter into such a selction. Insomuch as the small available sanitary forces will be swamped by their onerous duties under the best of circumstances in serious engagements; any error in judgment or indecision will needlessly magnify the difficulties encountered and thus sacrifice many lives and entail great suffering to many wounded unfortunates.

The enlisted personnel should receive thorough instruction in quick and intelligent first aid to wounded; in the care of animals, including riding, driving, harnessing, and the use of travois and the pack animals; in the transportation of wounded by ambulance, cart, horse, litter, squad and single bearer; in the principles of hygiene, including personal hygiene and care of wounded and of self in field conditoins; in the elements of cooking; of field nursing and many other practical matters which will at once suggest themselves to the thoughtful commander. The company should above all be the school of the soldier in the military virtues of discipline, faithfulness to duty and loyalty. In the first regard of first aid to wounded, simplicity of method should be constantly sought. Simple methods, because they are more capable of correct and intelligent application by the corps man; they abbreviate the time devoted to each sufferer, thus lessening materially the danger of clogging through an excess of wounded; and they minimize the material expended upon each case, which is an item of importance in the problem of transportation aside from that of practical economy.

Every officer and corps man in the Medical Department of the regular and state services should know how to saddle and ride horses; to harness and drive animals; to properly feed, water and care for animals; and to adjust the travois. As for the pack-mule, how rare the officer or man, who knows how to adjust the pack! A considerable number of pack animals are required by the Field Service Regulations for the present sanitary organization of a division, and yet there is scarcely one officer or hospital corps

Digitized by Google

man in the hundred who knows the correct application of the pack.

Instruction in marching and bearing of wounded over long stretches is in times of profound peace an unnecessarily arduous task for corps men; although in this respect it is just to demand more of the actual than of the potential soldier. It is well to remember, however, that in war conditions, much will be demanded of the corps man in this kind of endurance. As an example of that which may be required of the corps man of an ambulance company, it is only needful to picture a division attacked while in column formation. As prescribed by the Field Service Regulations, the station of the sanitary units is at the head of the supply train some ten miles to the rear of the vanguard. It is true that the equipment and personnel for a dressing station or even one ambulance company may be in the immediate rear of the advance guard; but, as provided, the greater part of the division sanitary units is at least ten or twelve miles from the front—doubtless on a dusty or bemired road along which come thundering cavalry, artillery, and ammunition wagons. The corps man must traverse this long stretch of road with at least part of his equipment; establish a dressing station; search out the widely scattered wounded; tramp back and forth through the long hours of the night bearing the wounded from the first-aid stations to the dressing station; and finally transport them by any available means to the more permanent field or stationary hospital. It is not practical to keep men always physically primed for duty of such exceptional and arduous character. Enlisted men should, however, be kept in marching condition; and should become accustomed to traversing unfamiliar country without losing sense of direction. Especially should they become adepts in bearing the wounded, with or without litters, and whether singly or in squads.

Only a few of the lines along which instruction in ambulance company duties might be pursued have been enumerated in the foregoing paragraph. When the existing personnel, officers and men, of the national and state troops is equipped with this special knowledge, it becomes a valuable asset in time of active service not only to fill creditably its own spheres, but also to leaven the sudden and disproportionate increment of inexperienced men entailed by the present military policy of the United States.

Digitized by Google

A STUDY OF THE FOOT AND FOOT WEAR.

By Captain F. W. WEED, Medical Corps, U. S. Army.

WE are not so much concerned with the correction of foot deformities, except as they occur in the service, as are the orthopedists, but it is scarcely necessary to emphasize the fact that we should be foremost among those who are specially qualified to prevent the occurrence of such deformities.

Original work upon the subject has been almost entirely confined to orthopedic surgeons, but their treatises are so numerous that their very variety and number show a lack of unanimity of opinion, and are, to the uninitiated, recondite and confusing. It is my purpose herein to review the literature as succintly as is practicable, to adapt it to the needs of the military surgeon, and include a preliminary exposé of personal observations based upon the study.

I purpose to give the anatomy of the more important constituent elements of the foot, selecting as the approximately perfect type, the classic foot; to give its mechanism and rationale; those mutations, (traced from the arboreal foot, through prehistoric and primitive stages), which contribute to its mechanical perfection; a comparison with the foot as it is seen at present; atavistic tendencies; other imperfections, especially as they occur in the foot of the soldier; and, in so far as foot wear is concerned,—1st: Shoes,—historical, conventional, military; essential features of a good shoe; best methods of fitting a ready-made military shoe to a foot; establishing a foot equation, etc. 2nd: Stockings,—varieties, sizes, etc.

The *classic foot* (1) is familiar to us in the sculptures of the early Grecian masters, notably, Praxitiles, (Fig. 1), Phydias, and somewhat later, Myron, whose exquisite reproductions show the foot but slightly influenced by footgear. It is necessary to go back thus far, for, as will be shown, it was not long after this that the foot began to suffer from the cramping effects of its covering. In fact, the sandal of that period, which consisted merely of sole-piece, foot-straps, and a toe-strap running from the first interphalangeal space to the outer side of the fifth toe, was already

Digitized by Google

causing a crumpling of the fifth toe. There was no pressure on the first toe, however, and we find that its inner border was a

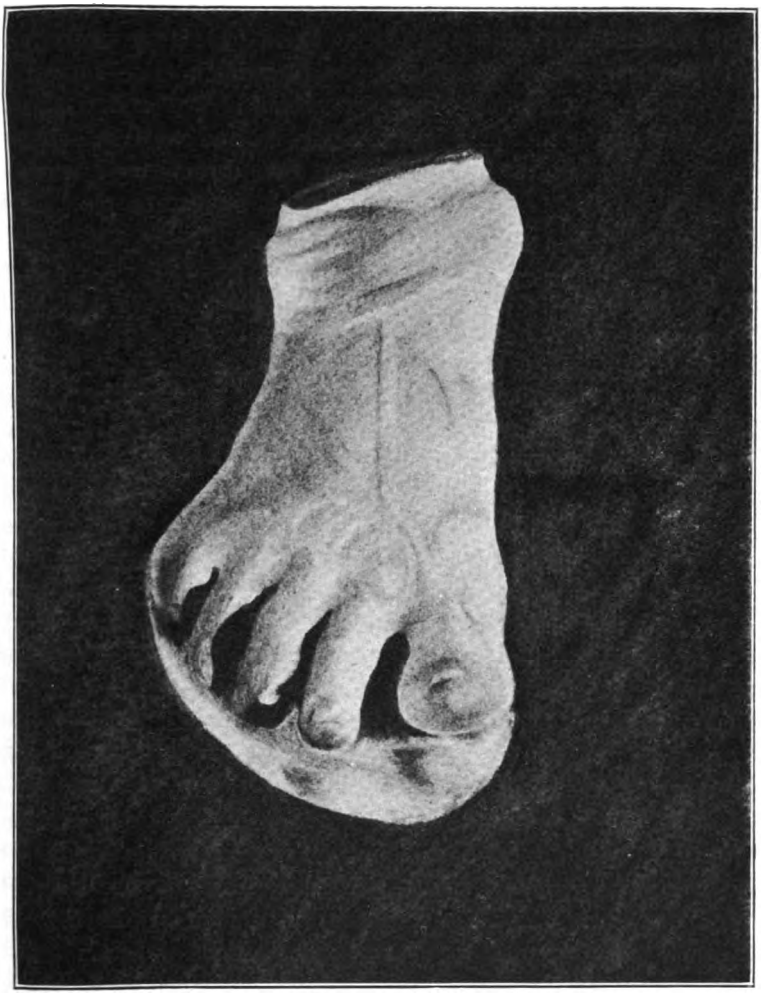


FIGURE 1: The Foot of Hermes, Praxitiles. (Redrawn from a photograph in Hoffmann's Conclusions Drawn from a Comparative Study of the Feet of Barefooted and Shoe-wearing Peoples.) The Lateral Deviation of the 2, 3 and 4 Toes is exaggerated by the intertoe strap, which has not been reproduced in the sculpture.

direct prolongation of the inner margin of the foot, a relation now seldom seen in the shoe-covered foot of the adult.

There are certain *constituent elements* of the perfected foot,

Digitized by Google

which, in combination, form a structure possessing an arrangement tending to give a solidity and flexibility requisite for biped plantigrade locomotion, supporting the height of the whole body with the least expenditure of force. Casse (2), in a paper on the ontogenetic development of the foot, compares the human foot to a tripod, whose points of support would be the calcaneum and the heads of the first and fifth metatarsals, and whose summit, a broad curvilinear surface arched in two directions, would be occupied by the astragalus. It is usual, however, to describe the vaulted formation as being supported at points by unequal segments, two of which start forward from the same point on the heel and extend, the inner, to the head of the first metatarsal, the outer, to the head of the fifth metatarsal; the two anterior ends being connected by the anterior arch. The inner, or long segment, is formed by the calcaneum behind and the first, second and third metatarsals, the cuneiform and navicular bones in front. The outer segment, being the flatter, is formed by the calcaneum, cuboid, and the two outer metatarsals which articulate with it. The transverse arch, or half-dome, is formed behind by the three cuneiform bones and the cuboid, in front by the metatarsals. This arch becomes shallower and shallower as the toes are approached, until at last upon reaching the heads of the metatarsals, the weight of the body is borne fully upon them all (3). This vaulted arrangement of the bones of the foot is maintained by ligaments, tendons, and fascial bands in such a way as to form a most elastic and adjustible support. The astragalus, at its inner side, overlaps the calcaneum, and would, in the passive attitude of the weight-bearing foot, tend to become displaced downward and inward between the calcaneum and the navicular, were it not for the internal navicular ligament, which passes from the sustentaculum tali forward under the astragalus, and is attached to the navicular. The tendon of the tibialis posticus passes forward under the latter ligament, its fibres being united with it, and by its insertion on the under surface of the navicular exerts a pull on the latter bone which augments the action of the internal navicular ligament just at the moment when the arch is most in danger, that is to say, when the heel is raised and the weight is thrown forward on to the navicular, in walking. Lovett and Cotton (4) demonstrated that the joint most concerned in pronation of the

Digitized by Google

foot is the calcaneo-astragaloid. The calcaneal facet, sloping downward from behind forward, may permit the astragalus to partly rotate and slip downward. The tibialis posticus, however, by pulling inward and backward on the navicular, fixing it in relation to the calcaneum and preventing rotation of the astragalar head, effectively overcomes pronation of the foot.

The tibialis posticus is a direct extensor of the tarsus upon the leg, but acting in conjunction with the tibialis anticus, a flexor of the foot, it supinates and flexes the tarsus. The flexor longus hallucis, continuing its action, is a powerful adductor of the foot.

The extrinsic muscles which have an action opposed to the muscles just mentioned are the peroneus longus and brevis, exerting, as they do, a leverage force from the external malleolus, producing when unopposed, eversion of the sole of the foot, noted best in fracture of the lower end of the fibula.

These latter muscles, in conjunction with the flexor longus digitorum, the long plantar fascia, and the short ligamentous bands connecting the navicular, the cuboid and the external cuneiform bones, play an important part in the maintenance of the anterior arch.

There is a diversity of opinion as to the importance of the individual muscles of the supinator group. Hübscher (5) is of the opinion that an apparent index of the insufficiency of the supinators is the defective function of the flexor longus hallucis. Nicoladoni (6) though among the first to express belief in the importance of the tibialis posticus in maintaining the arch of the foot, found that permanent loss of the posticus was not of necessity followed by pronation, while the reverse was the case with the sole muscles, and therefore concluded that the latter muscles are as important as the posticus. He based his opinion on the study of paralytic cases. Giani (7), on the other hand, after observing a case in which there was a mangling of the tibialis anticus and a subsequent atrophy of that muscle, concluded that it was the function of the anticus to maintain the inner arch by holding up its vertex. Osgood (8), following the reasoning of Lovett and Cotton, is firmly convinced of the importance of the posticus in maintaining the equilibrium of muscle balance, in the manner described above, and further thinks that the intrinsic muscles of the

Digitized by Google

foot affect pronation to a slight degree only. Others, notably Gocht (9), and Schultze (10), claim that a shortening of the Achillis tendon is the principal cause of the weakened position, acting in such a manner as to cause a lateral rotation of the calcaneum and a subsequent dislocation of the astragalus.

With few exceptions, it seems to be the concensus of opinion, however, that the supinator group bears the utmost importance to the maintenance of the foot in the weight-bearing line, that arched position of muscular strength and control, in contradistinction to pronation, a weak position of ligamentous support.

Evidently the *arched arrangement* of the foot has been a developmental improvement, entirely with a view to walking. It is not peculiar to man alone, for it exists well developed in plantigrade animals, who have a considerable weight of body in comparison to the surface of the astragalus, the armadillo for example (11).

Perplexing questions relative to the foot can only be elucidated by a study of the changes through which it has passed, for it must vary considerably, dependent upon the uses to which it is put. How else explain the high, medium and low types, met with daily, which are not pathologic entities?

Accepting the incontrovertible evidence that man's former condition was arboreal, then his foot must have been very similar to the feet of some of the arboreals familiar to us at present. Compare this foot with its condition shortly after man, for some indeterminable reason, gradually left the trees and became accustomed to walk upon the ground, the foot of primitive man, and the perfected or classic foot, and we have a sequence of changes, the knowledge of which is a *sine qua non* in the basic principles of the study of the foot.

Whereas, prolific, recent, comparative, rational anatomy enables us to intelligently compare the feet of anthropoids with those of modern and primitive man, progress in paleontology has not been such, though sufficient, as to establish the connection between the former and present states of man's foot.

The remains of arboreal traits in the feet of new-born infants are as familiar as a similar condition observed in their hands.

Considering the foot as a whole, we find that, in most of the

Digitized by Google

arboreals, the metatarsal bones are bent, concavity on the plantar aspect; in man, however, they are almost straight. Owing to the angle of inclination of the calcaneum, there is an important peculiarity in the foot of man, its arched condition, which not only gives the requisite solidity in plantigrade walking, as stated, but permits of those multitudinous movements necessary for a proper equilibrium, and springiness of step (12).

In the simians who do not use bi-pedal locomotion, there is a flattened condition of the arch, and they walk on the outer border of the foot. For this reason, they are unable to assume the upright position, or maintain it for any length of time, without aid from the thoracic limbs. The orang cannot put its feet flat on the ground, but is supported upon their outer edges, the heels resting more on the ground, while the curved toes partly rest on the ground, by the upper side of their first joint, the second outermost toes of both feet completely resting on this surface (13). The orang is the most arboreal of the anthropoids, rarely descending from his favorite tree, consequently there has been no developmental modification in his foot.

The gibbon, on the other hand, being less of a recluse than the orang, readily takes to the erect posture on a level surface (14), but as he, too, is unfortunate in not possessing a perfected foot, he is unable to maintain his equilibrium except when assisted by the thoracic limbs, which hang down touching the surface, or are elevated and used as a balance. Both the gibbon and chimpanzee place the whole of the long narrow sole of the foot on the ground at once, but it is raised at once without there being any elasticity of step, and their progression is not by placing one foot before another, but by simultaneously using both, as in jumping.

The skeletonized foot of man differs but little from that of the anthropoids except that in the latter the same constituent elements, adapted as they are to prehensible qualities, must possess a more loosely jointed structure, the tarsus is greatly lacking in solidity, the ligaments are relaxed, and the bones have rounded articular facets denoting a considerable amplitude of movement.

That change which has taken place has been limited to the tarsus, the metatarsus and phalanges being much the same, except in the more supremely arboreals, the metatarsal bones have a

Digitized by Google

marked cavity downward, and there is a difference in relative length (15).

The relative length of the calcaneum is in direct proportion to the aptitude for walking. The most arboreal of the anthropoids, the orang, has the shortest. The lower races of man have a shorter one than that found in the higher types. The posterior breadth likewise differs, the arch of the foot is considerably influenced by the angle of inclination, but it gradually increases, as we progressively view the foot of the Veddahs, the Negritos, primitive Australians, Negros, and the white man.

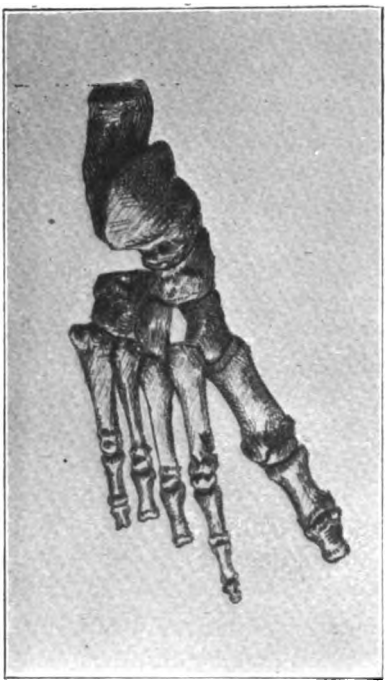


FIGURE 2: Foot Skeleton of a Gorilla, after Volkov.

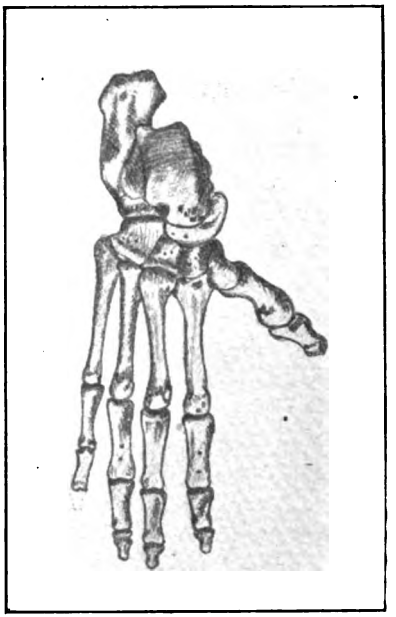


FIGURE 3: Foot Skeleton of the Man of Chancelade, after Testut: (Fragmentary.

The length of the astragalus diminishes as we go down the scale, its minimum length in man is found among the lower races. Its most important character is the divergence of its head. This divergence being caused by a divergence of the first cuneiform, the first metatarsal, and the first toe. It is a necessary feature among

Digitized by Google

the climbers in general, monkeys in particular, whose feet are adapted for encircling the limbs of trees. In man, the function of whose foot is entirely for locomotion, a divergence of the first toe, to the extent seen in the anthropoids, would cause interference with its mobility, as the final impetus is given by the first toe as the foot leaves the ground, an impossible event were the toe on the lateral aspect of the foot, hence the astragalus, instead of being a movable bone, as in climbers, becomes the fixed keystone of the arch of the foot.

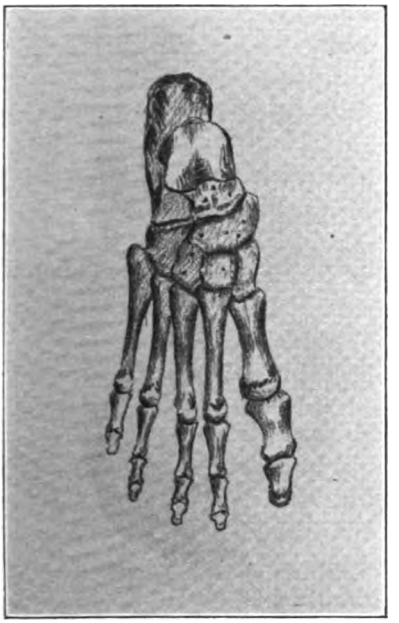


FIGURE 4: Foot Skeleton of a Veddah, after Sarasin.

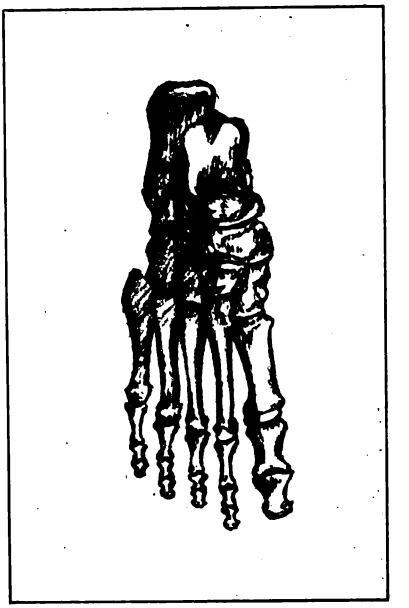


FIGURE 5: European Foot, after Volkov.

The variability in the scaphoid depends upon that of the astragalus and the first cuneiform. In the simians, its inner edge is very thick, and in the lower orders of man, its tuberosity is markedly more developed than in the higher, it being well known that the first toe of the lower orders is more divergent than that of the perfected foot. (Compare figures 2, 3, 4 and 5.) The glenoid cavity differs in much the same way, being as one would suppose, longer laterally in the arboreals, approaching a square shape in

Digitized by Google

those who walk, the prehistoric and primitive types representing the intermediate stages (16).

Complete investigations, along the lines given, of the prehistoric foot have never been undertaken, but the facts as known confirm those mentioned. Testut (17) states that in the foot of the man of Chancelade, the distal extremities of the first and second metatarsals are separated by 18 to 20 millimetres, and that the first toe continues in a direction corresponding to its metatarsal, giving a 30 or 35 millimetre interval between the ends of the first two toes. This places the prehistoric foot in an intermediate stage between the simian and primitive foot, especially since the direction of the head of the astragalus corresponds to the divergence of the first metatarsal, and the articular facet (glenoid cavity) of the scaphoid, signifies a marked degree of mobility or apposability of the first toe.

Beginning with the foot as it was before it was used solely for the purposes of locomotion, (represented by the foot of our collateral ancestors, the anthropoids), and following it through its developmental modifications, we have somewhat the following:

1st. An archless structure possessing a comparatively great degree of mobility in its constituent parts, (for prehensile purposes), but the arrangement of which is not such as to support much weight and at the same time permit of those multitudinous movements necessary for the easy maintenance of the equilibrium of the body in its upright position, more especially in walking; whose prehensile qualities necessitate a concavity of the plantar aspects of the metatarsals and a marked divergence of the first toe. More marked in the foot of the orang, these features become progressively less so in the gorilla and chimpanzee.

2nd. As the foot is utilized to a greater and greater extent for the exclusive purpose of locomotion, the arrangement of its constituent parts must of a necessity undergo a modification, and at the stage represented by prehistoric man, we find the first toe and its corresponding metatarsal approaching the anatomical axis of the foot; the tarsal bones more compact, their facets less rounded, and as a consequence, with a greater degree of solidity in their structural arrangement. The forefoot, still somewhat flat, is broad, and though there is a slight angle of inclination of the long axis of the calcaneum, the heel is prominent, (long).

Digitized by Google

3rd. The next advancement is seen in the stage represented by the foot of the Veddahs (18), (a primitive people of Ceylon), where, though the first toe is still divergent, it is not nearly so markedly so as in the prehistoric foot; the axis of the os calcis is beginning to diverge from the horizontal, and there is a slight arch formation; the heel is long (Fig. 6). Other primitive feet,—the Negrito, native Australian, and Negro, show the same features, but to a progressively less extent in the order given.

4th. As civilization advanced and walking on the ground became more of an art, the hands alone being depended upon for

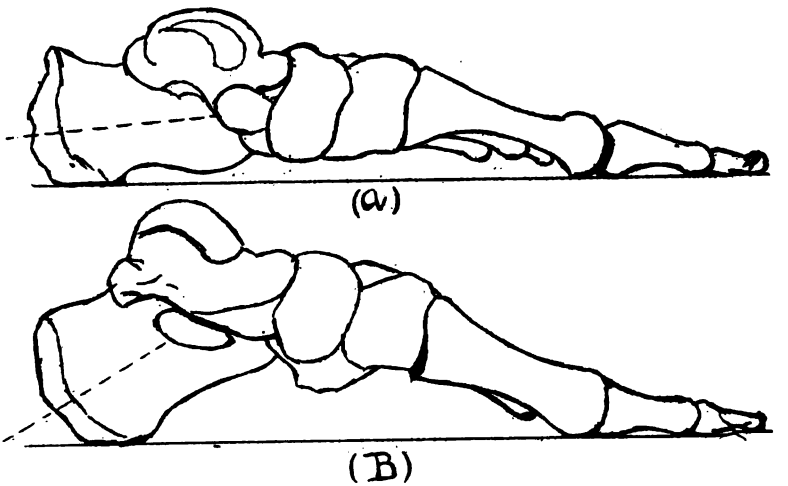


FIGURE 6: (A) Internal Surface of the Foot of a Veddah, after Sarasin.
(B) Internal Surface of the Foot of a European, after Volkov.

prehension, the foot lost this power to a very great degree. We find no mention of the use of the foot for purposes other than locomotion, in the ancient history of the Caucasians, (Grecian, Roman), and as the foot was at this time, as yet undeformed by covering of any sort, we look for the perfected foot among these people; a foot with a uniformly high arch (antero-posterior), first and second metatarsals nearly parallel, long axes of the toes in prolongation of the axes of the metatarsals, the anatomical axis of the foot coinciding with the long axis of the leg and passing through the second toe, the heel small in consequence of the elevation of the anterior portion of the calcaneum.

Digitized by Google

At this point developmental modification ceased. Any further characteristic changes could cause only a retrogression toward the primitive, especially in that part of the foot which is more intimately concerned in maintaining it as a power for locomotion. The vast number have long since ceased to use the foot to the extent it was used when nomadic tribes were practically always on the move; gregarious tendencies have accomplished this for us, just as the lack of social inclinations in the orang has prevented him from developing beyond an essential arboreal. Another, and undoubtedly more important, cause for the mechanical weakening of the foot, has been the use of confining foot gear. Atrophy always follows disuse, and as we have seen, the integrity of the foot primarily depends on muscular support, it is small wonder that its protentiality is markedly less than what it was before the advent of the prototype of our shoe during the Thirty Years' War. Hallux valgus was common at the time of the Renaissance, for it appears on the subjects of works of art, (paintings, more especially), at that time, and it is reasonable to suppose that it was equally common long before that. "Flat-foot" is now so common, (Hoffmann (19) gives about 50% symptomless Caucasian feet as being low) that commerce plays upon the credulity of the masses in advertising so-called arch supporters in much the same way as patent medicines are flaunted at us.

That this is possible, is probably due to the popular fancy that all forms of lowered arches are pathological and that the condition is a painful one in every instance. The atavistic tendencies seen in the feet of some Caucasians, at first glance, similar to the acquired static error, are in reality as different from the latter as one stage in the evolution of the foot is from another. According to the most recent views of orthopedic surgeons, the former is paradoxically considered to be "normal" for the individual, the latter, a disability, in one of its many forms. To differentiate between them is probably one of the most interesting and important questions, which confront us in the physical examination of a recruit.

Muscle balance maintains the arch in its developed state. Imbalance permits a greater or less degree of destruction of the arched arrangement, with or without associated pain; but a foot with a primarily low arch, may be as functionally good as one with

Digitized by Google

a much higher arch, that is, the muscle groups concerned in maintaining its integrity may be performing all the work of which they are normally capable. It seems scarcely reasonable to suppose that this type of foot is due to a general malnutrition, (rachitis), or to the effects of intrauterine pressure, since it is a foot which is subject to the same pain and further lowering of the arch which characterize a weakening condition. The pathologically low arch is a result of a dislocation of the astragalus, downward and inward, carrying with it the leg, which rotates inward about a nearly vertical axis located near the inner border of the tibia, von Meyer's line of weight transmission falling to the inner side of the center of the ankle joint (20). Further, the vertical axis of the os calcis deviates inwardly, from below upward; its angle of inclination with the horizontal, lessening with the degree of prolapse of the astragalus.

In the *nonpathologic low-arched foot,* on the contrary, the astragalar head is not interposed between the calcis and the scaphoid, consequently there is no inward deflection of the vertical axis of the calcis, nor an outward movement of the scaphoid with a resultant valgus of the forefoot. The leg is not rotated inward on its vertical axis and the weight bearing line falls over the center of the ankle joint. (See Figures 7 and 8.) Serviceable it is, but it does not possess that exquisite degree of elasticity towards which evolution has tended.

The *strength of a foot* varies in proportion to the potentiality of its supinator group of muscles in comparison to that of the pronation group, since their action is antagonistic, and reduced to a ratio of pounds pull, gives an index to the value of a given foot. By such a means, the writer had an opportunity to determine the theoretical worth of the low-arched type of foot, when he had an occasion to visit a post, during the past year, where there was stationed a regiment of colored troops. A company of sixty-five men was chosen in which there was a preponderance of the "flat-foot" of the negro. With few exceptions they were of unmixed blood. In no case was it noted that the adductors, were weaker than the abductors, the average ratio equalling the average ratio of unequivocally normal feet. None of the soldiers gave a history of foot tire or strain under weight-bearing, and incidentally, the company enjoyed the reputation of

Digitized by Google

being the best marching organization of the regiment. Similar results have been obtained in the feet of many Jews (21), who were, fortunately, available for examination, and in many others, to whom the natural possession of very low arches has not been attributed.

The *resting position of the weight-bearing foot,* when it is passive, is maintained by ligamentous support. These ligaments are not elastic and in the normal foot are not overstretched. In assuming a position of passivity, the most significant change of

FIGURE 7: Internal Surface Nonpathological Very Low Arched Foot. Potentiality of Supinator to Pronator Group, 10.5 to 8.5.

FIGURE 8: Front View. Same Model as in Figure 7.

the contour of the foot is a partial obliteration of the outward curve of the inner border, caused in great part, by the downward and inward rotation of the head of the astragalus. Ordinarily this movement is checked and the ligaments can readily maintain the arch in its lowered position, provided the strain is not constant. It is the prolonged involuntary assumption of the passive attitude in weight bearing that eventually leads to the overstretching of the ligaments and a consequent more or less complete dissolution of the flexible arched arrangement.

Digitized by Google

Weak Foot. Progress from beginning to end of the breaking down of the arch may be slow or rapid, and may be arrested at any one of its several stages. Obviously, the disability should not be designated by a term which applies to the appearance of the completed condition and which does not distinguish it from a nonpathologic, low-arched, serviceable foot. Whitman (22) a number of years ago discarded the use of the terms "Flat foot" and "Pes planus" for general application, reserving them for designations of what he termed "a type of painless deformity" in which "the flatness of the foot is more noticeable than the other components of the deformity," and chose "Weak foot," qualifying its use by the addition of the adjectives, "extreme," "rigid," etc.

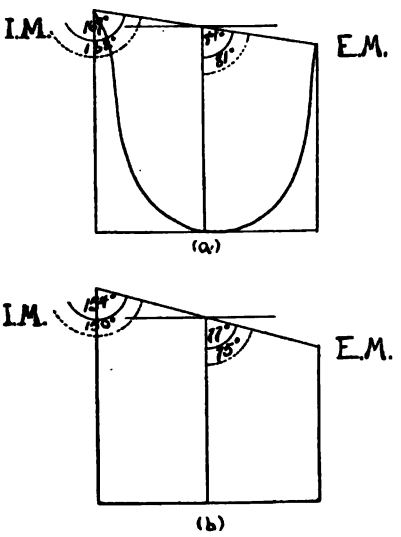


FIGURE 9: Diagrams representing obliquity of ankle joint in (a) horizontal and (b) vertical planes, of foot shown in Figures 7 and 8 bearing weight. Upper figures represent normal angle of Dane, who first devised the method In pronation, an essential feature of a weak-foot, angle in (a) increases to a point several degrees beyond a right angle. I. M., Internal Malleolus; E. M., External Malleolus.

A certain number of weak feet represent simply an overstrain, which, when they are not bearing the weight of the body, appear to be in the normal state, that is, the arch is normal for the individual. Passive motion is not restricted and activity is limited only by the muscular imbalance, which, in the weight-bearing attitude, has caused an extra amount of strain on the inelastic ligaments. The astragalus has not rotated and descended much beyond the normal and as a consequence pronation has not been produced to a very noticeable extent. This type of foot condition is best termed,—"Simple relaxed, flexible, weak foot."

Where in weight-bearing, pronation is marked, but the inner arch tends to resume its normal relation when the foot is not bearing up the weight of the body, the condition is more properly

Digitized by Google

termed,—"Pronated, flexible, weak foot." Abduction is prevented only by voluntary muscular control, first called by Lovett and Cotton (23), "Reserve pronation."

The progressive lowering of the arch, consequent upon its prolonged lack of support, eventuates in a position in which the outward curve of the inner border of the foot is obliterated, that is, the bearing surface of the foot is complete; the more complete interposition of the head of the astragalus between the calcaneum and the scaphoid permits the descent and outward rotation of the latter bone, and with it, the valgus of the forefoot. The leg descends with the astragalus, the inner malleolus rotates downward and backward, the outward forward and upward, producing an alteration in the obliquity of the axis of flexion of the ankle joints, destroying the mechanism by which the normal joints support the weight of the body with the least expenditure of material. This inversed rotation of the tibia interferes with the mechanism by which complete extension of the knee should lock the joint and counterbalance the tendency of the body-weight to flex it. Then there is an exaggerated inward rotation of the thigh to compensate for the inward rotation of the leg. Constant muscular efforts to prevent these positions give rise to the pain resultant from the tonic spasms of the muscles in the outer side of the leg, thigh, and in the gluteal region (24).

In the extreme grades of the lowered arch, flexibility has been lost, in consequence of the lack of tonicity in the supination group and a spastic contraction of the pronator group, (explained above). Constant stretching of the ligaments of the foot causes a low grade inflammation to set up, and may give rise to fibrous adhesions. In some old cases there is a bony ankylosis of the joints. This type of disability is best termed,—a "Rigid mid-tarsal valgus."

The *etiologic factors* which cause weakness in the supinator group of muscles are a change in relation between body weight and potentiality of the muscles, general or local weakness, and an inherent structural insufficiency of the foot in relation to an increase in body weight.

Lorenz (25) and others, taught that the foot of every newborn child is flat. Dane (26) however, disproved this by demonstrating that the arch is in no wise dependent upon muscular action for its beginning, but that it exists as a perfectly formed

Digitized by Google

structure in the majority of feet at birth, a sustaining pad of fat giving the appearance of a complete bearing surface. Some German orthopedists are loathe, even as yet, to accept this fact.

The function of the perfected foot is for the exclusive purposes of locomotion, and it performs this by acting as a lever, the heads of the metatarsals being the fulcrum, the energy supplied by the muscle groups. The fulcrum, or ball, has its cross diameter in diagonal relationship with the anatomical axis of the foot, owing to the relative shortness of the outer arch. As the heel is lifted, in the act of the propulsion of the body forward, this diagonal direction permits of the throwing of the weight of the body on the outer, stronger arch, only when the foot is in such a position that its center is a continuation of the weight-bearing line of the leg. Walking with the feet turned out, a position in which the normal mechanism is interfered with, is a potent cause of the beginning weakness of the arches. A primarily low type of arch, from the mechanical weakness of its lines of structure, will, subjected to the same influences as is one with a much higher arched arrangement, break down much sooner.

Occupations necessitating prolonged attitudes in which the feet assume the passive weight-bearing position, especially when in combination with the constitutionally weakening influence of an indoor season, and those which suddenly demand excessive functioning of the feet, as the early drills of the recruit, especially when the foot is clad in confining footgear, bear an important causative relationship to the eventual weakening of the arches.

The narrow shoe surpasses in evil all causative factors in the production of weak feet. Not only does it predispose to a valgus of the first toe which, in turn, leads to an abducted position of the foot, but it acts directly by causing a pressure atrophy of the intrinsic muscles of the foot, thus throwing more work on those of the extrinsic groups, and by decreasing the normal flexibility of the foot, limits the exercise of the latter muscles. Lovett (27) found in the study of the feet of trained nurses, extending over a period of some years, that he was able to combat the tendencies to weakness in feet, in a majority of cases, by a judicious selection of footwear.

Whether the progress from one stage to another, in the development of the weakness of the arch, be slow or rapid, seems to be independent of the causative agent, excluding trauma.

Digitized by Google

Given an apparently pathological position of the arch of the foot, some means whereby the ratio of the potentiality of the adductor and abductor muscle groups can be accurately determined and compared with the ratio of the normal groups, obviates the necessity of employing the hitherto defective visual and exercise tests, and enables us at once, to ***differentiate between normal and abnormal feet,*** and to place the latter in their proper class. Osgood (28), utilizing an apparatus devised by Baumgartel for measuring the potentiality of muscles groups as a whole, obtained an average ratio for normal feet, and a ratio

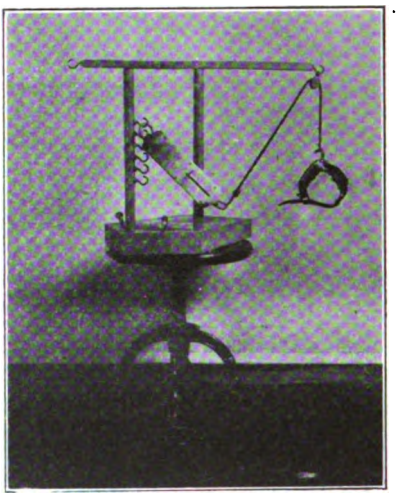


FIGURE 10: Testing and Exercising Machine. Osgood's Modification of Baumgartel's Apparatus.

of feet representing each stage of the weak foot. His modification on this apparatus, for the home use of his patients, is shown in figure 10. By replacing the spring balance with a three or five pound weight, it is used as an exerciser. His method of obtaining the ratios is as follows:

With the patient seated, the knee is flexed at about 45 degrees, the foot held at a right angle to the leg. The thigh is fixed to prevent its rotation and lateral motion, either of which would vitiate the results. A padded leather strap, on which is strung a stout catch-hook, is fastened about the foot just behind the great toe joint and buckled tight. The foot is then abducted and a Chatillion spring balance, registering up to fifty or sixty

Digitized by Google

pounds, is attached, one end to the catch-hook on the strap and the other to a fixed point on the outer side of the foot. The patient is now directed to slowly adduct the foot with the greatest possible force, and the number of pounds pull as indicated on the balance recorded. The potentiality of the abductors is then measured in a similar manner.

He found the ratio of the average pull of the adductor group to that of the abductor group to be as 10 is to 8.2, in the normal foot, twenty-two feet being examined. In simple foot strain, where the feet were flexible but markedly pronated and gave rise to definite symptoms of tire and foot discomfort, the ratio of adductors to abductors was as 10 is to 10.8. In rigid flat-feet, the ratio further varied, being as 10 is to 12.2.

These results demonstrated that the adductor group normally has a stronger combined pull than the abductor group, but that the latter, being favored in weight-bearing by the planes of the joint surfaces, may become the comparatively stronger, overbalancing the adductors, and thus tend to favor foot strain.

The incidence of a large number of weak feet in recruits is common to all armies, and is to be attributed to several causes, chief among which may be mentioned ill-fitting shoes on non-adaptable feet. Add to this the really excessive use to which the feet are at first put, and the wonder is that the number is not larger. Since our aim is toward the perfection of the soldier's physique, why not give the feet a proper degree of *prophylactic attention?* Fresh recruits from the German Army have a relatively high percentage of foot strain, but this is reduced by the leg and foot gymnastics to which they are subjected (29). There is a foot exercising machine in most of our gymnasia, but it is seldom used. A much better one than this pendulum apparatus would be one that would permit the motion of supination and pronation, and not only adduction and abduction, since flexion is an important feature of the combined movement. Resistive forms of the exercise give the quickest results. The "supinator board" of Hovorka (30), which is composed of two smooth boards, joined at their long edges at an angle of 160-165 degrees, and covered with soft felt, would meet the needs of a military gymnasium, since any number of men could use it at the same time, merely walking to and fro upon it.

These resistive gymnastics, aimed at the development of the muscle groups concerned in the support of the arches, in con-

Digitized by Google

junction with instructions in proper posture both at rest and in motion, should form part of the earliest schooling of the new soldier.

Foot strain is a thing unknown among barefoot peoples, nor is it found among sandal-wearing monks and peasants wearing loose wooden shoes (31). With a properly fitting shoe and the necessary attention given to the above details, even the low-arched foot of the recruit, granting its vulnerability, should weather the vicissitudes of the first days of the recruit's changed mode of life.

In considering the *treatment of weak feet* it is of the utmost importance to determine the extent of muscle imbalance first, since remedial measures are to be directed toward the re-establishment of the balance. In order to accomplish this re-establishment best, the foot must necessarily be placed in that attitude in which any further stretching of the already toneless muscles is considerably diminished, that is, in a partially supinated position, maintained either by the aid of a modified shoe, or a brace plate.

In beginning cases of foot-strain, (The "Simple, relaxed, weak foot," mentioned above), a cure may be obtained in the majority of instances, by the use of a properly fitting shoe, so modified as to hold the foot in the slightly supinated position, (as recommended by Thomas (32), who raised the inner border of the heel and extended it forward on the inner side; by Taylor (33), et al., (34), who accomplish practically the same results as those obtained by the foot-plate, by manufacturing a shoe to fit the forcibly adducted foot), combined with resistive gymnastics, the best means of obtaining which, are found in the use of some such apparatus as that used by Osgood (35). The spring balance is replaced by a three or five pound weight, acting as the resistance. The toes are forcibly flexed as the foot is adducted, thus exercising the flexor longus hallucis and the flexor accessories. The tibialis anticus is best developed by dorsal flexion, coupled with slight adduction, since its action is principally a flexor of the foot on the leg. The pulley cord is passed through the screw-pulley in the base-board of the machine, the hanging pulley being naturally placed on the outer side of the foot exercised. With the knee extended the exercise

Digitized by Google

of the dorsal flexion and adduction is taken, the foot raising and lowering the weight.

In the pronated types of flexible weak feet, where the measures mentioned above are insufficient to raise the inner border of the foot until the correct position of weight-bearing is induced, brace treatment takes its place in combination with them. Probably no plate has given the general satisfaction as that which has been afforded by the arch support described by Whitman (36), twenty-five years ago. Extending from just in front of the bearing center of the heel to immediately behind the head of the first metatarsal, and laterally, by means of flanges, from above the head of the astragalus on the inner side of the foot, to a point on the outer side of the foot, just above and behind the tuberosity of the fifth metatarsal, it affords a comfortable support, which is light, inelastic, and at the same time interferes least with the natural motions of the foot. By lateral pressure on the astragalar head, it suggests to the wearer the proper attitude to assume in locomotion. Made of 18-20 gauge sheet steel, it must, of course, be fashioned on an accurately prepared cast of the foot.

Recent objections to this plate are that it is not sufficiently flexible, and that it tends to make the wearer dependent upon it, permanently (37); that its flanges cause the leather of that part of the shoe overlying them to wear through, and in other cases, press into the foot (38); that it is insufficiently light; that it cannot be properly coated so as to prevent rusting; that it does not have sufficient convexity upward to support the inner (second and third) metatarsals (39) (40).

In Lange's clinic, they have been developing a celluloid plate, whose strength is augmented by the incorporation of steel wires (41). The latest modification of this is Knop's plate, made in the following manner: A fine meshed gauze bandage is rolled on the plaster cast of the foot and covered with a solution of celluloid in acetone on the sole. Three layers of this kind are applied and then fixed, then again three layers of gauze and celluloid are applied and fixed and the plate removed and dried. This method offers promise of being generally practical, and since the plate is constructed in a readily adaptable state, it more easily conforms to the contour of the cast (42).

Digitized by Google

Recent modifications in cast making tend to eliminate the question of time and the chances of error in unskilled hands. The method in vogue in Boston is to place the sole of the patient's foot, he being seated, in a flat pan of plaster cream, forming the mold, which is later filled with plaster. Upon hardening, the positive is separated from the negative, and the cast is corrected for adaptation to the foot plate. Forbes (43), by using a plaster which contains a superabundance of water, for the negative, (two parts to one of plaster), and one which contains two parts water to three of plaster, for the positive, separates them easily after setting, and thereby obtains more uniformly saisfactory results than when the Whitman method is used.

In the extreme inveterate grades of weak feet, operative measures are a necessity, be they bloodless or bloody. Passive correction of the deformity by manual or instrumental means precedes the institution of corrective active exercises. Open operative intervention, practiced more extensively in the German and French schools than in America, indicates, in a manner, the opinion of the operator as to the direct cause for the weakening of the arches. Gocht (44), lengthens the tendo Achillis and makes a new insertion for it farther inwards on the os calcis. Schultze (45) lengthens the same tendon, but follows it with a typical redressement, puts on an ambulatory plaster in the overcorrected position, "aiding the result in no slight degree." Antonelli (46), to increase the activity of the supinators and decrease that of the pronators, carries the tendon of the extensor proprius hallucis beneath the plantar arches and fixes it; lengthens the Achillis tendon; increases the tension of the tibialis posticus and diminishes the tension of the peroneus; and transfers the action of the extensor longus tendon of the second toe to the first toe. Nicoladoni (47) proposes open tenotomy of the Achillis tendon, and when, as the result of function, pes calcaneus has developed, the tendon is reunited. Cauchoix (48), has obtained excellent results by shortening the tendon of the tibialis posticus, resecting about two c. m. back of the internal malleolus, modified in some cases by a trapezoidal tarsectomy. Orthopedists of the American school are, for the most part, conservative, depending upon forcible overcorrection under ether, and plaster bandaging for from four to six weeks thereafter, ex-

Digitized by Google

cept in cases of bony ankylosis and paralysis. Painter (49) resects a portion of the peroneal tendons, where the resistence to correction lies in the spasmodic contraction of those muscles; and removes the scaphoid in those cases of bony deformity. Wilson and Patterson (50), in suitable cases, where relief has not been obtained by the use of apparatus and other measures, transplant the tendon of the extensor hallucis proprius to the internal edge of the scaphoid. Ryerson (51) advocates division of the peronei, transplanting one or both of the tendons to the inner border of the foot, claiming to relieve a distorting tendency and to supply a corrective influence.

These extreme measures are used, in most instances, only when other methods have failed, and are applicable to individual cases only, paralysis for example.

The adjuncts to the treatment of the weak foot are massage and passive hyperemia. As the circulation of the weak-foot is poor, evidenced by the enlarged veins, hyperidrosis, etc., it is obvious that these measures are indicated. The class of cases most suitable for manipulation and massage are those in which the muscles yield when the foot is manually supinated, the arch being completely restored for the time being. This is a painful procedure, but becomes progressively less so after repeated manipulations. The hot-air bath, as recommended by Walsham (52), or Bier's passive hyperenia (53), makes the rigid foot more supple, and the arch can be restored without any pain or the application of much force, after it has been subjected to a temperature of 250 to 300 degrees, for a half hour or more.

There are several reasons why remedial efforts fail to bring the success anticipated. It is of the utmost importance that there be a cooperation on the part of the patient, since a considerable part of the treatment depends upon the intelligent and resolute endeavors of the patient to correctly maintain a proper weight-bearing attitude, both in standing and in walking, to exercise the proper muscles of the foot and toes, etc. Where arch supporters are worn, it must be understood that they will need correction, as improvement in the heightening of the arches occurs, and primarily they are to be looked upon as temporary braces, to be eliminated from the course of treatment, as soon as the strength of the muscle groups warrant. All faulty weight-bear-

Digitized by Google

ing conditions of the feet are but symptomatic of some underlying cause, and the fact that this cause must be first removed before there can be any hope of improvement in the local derangement, scarcely needs emphasizing. Franke (54), sounds the note of warning, when he states that "Not all the pain in the sole of the foot is due to flat-foot by any means, as is commonly supposed."

Anterior Metatarsalgia. Anterior metatarsalgia, synonymously termed,—Morton's neuralgia, Morton's painful disease of the toes, Metatarsagia, etc., is still a subject of controversy among orthopedists. The majority believe that it is due to a static error in the anterior arch, but ascribe to the pain various causes, which cannot be reconciled to the occurrence of the cramp, at times.

It is most frequently associated with depression, rigid or non-rigid, of the anterior arch, but is occasionally met with in feet which are apparently normal.

It affects those in whose feet there is little muscular strength, and is consequently seen more often in the physically inactive,—those of the higher walks of life. It is not uncommon among officers in the service, and for this reason, it is incorporated in the discussion.

Morton (55) thought that the cramp was due to pressure on a digital branch of the plantar nerve, or a filament of it, which was supposed to pass around the neck of the metatarsal. This, however, has been disproved. Since then, osteitis, painful calluses, etc., have in turn, been assigned as causes for the cramp, but neither fits all cases.

The character of the pain is peculiar in that it may come on suddenly and as suddenly subside. Usually, however, it begins somewhat late in the day, after the shoe has been worn for some hours, and frequently after the foot has slightly increased in size, either from muscular exertion or heat. Its occurrence seems to be independent of the weight-bearing position, in some cases, in fact, the cramp is most troublesome during the sleeping hours. Quite commonly it starts as a burning sensation, or one of discomfort only, that increases in severity until the shoe is of necessity removed. It is referred to the fourth metatarso-phalangeal joint, usually, though at times it is not confined to this joint.

Digitized by Google

The most constant cause is a shoe which predisposes to a dorsiflexion of the phalanges, which, in turn, produces a depression of the heads of the metatarsals, occasional at first but soon becoming habitual.

The affected foot is usually found to be about one-fourth inch broader than its fellow at the ball, and beneath the involved joint, there is located a callus with a painful center. In the ordinary shoe, where the space between the insole and outsole is filled with nonsupporting material, there is lowering at the middle, which is exaggerated by a bunching of the turned-up vamp, etc., at the side, that allows a lowering of the inner metatarsal heads beyond the horizontal, subjecting the lowest to pressure and lateral compression, which gives rise to the cramp.

The explanation for the more frequent involvement of the fourth joint is that it is practically the outer support of the arch, and the fifth being on a higher plane, favors subluxation of the fourth metatarsal head, and injurious pressure.

In treatment, the immediate relief from pain is the first consideration, and is best accomplished by strapping with adhesive plaster in such a manner as to restore the arch and prevent depression (56) (57). Shoes must be worn, which will not compress the feet laterally nor depress the arch by a tight vamp seam. Whitman's (58) spoon arch support, either alone, or in combination with a longitudinal arch support, since the anterior arch weakness is frequently associated with beginning weakness of the inner arch, affords excellent support while the forefoot is being strengthened by exercise. Planter flexion of the digits is the best form of exercise for the anterior arch. Grasping small articles, marbles, with the toes, is an excellent means of performing plantar flexion.

In special cases and those which are inveterate, excision of the head of the affected metatarsal, as originally recommended by Morton as a routine, gives relief, without much resultant deformity, or interference with the integrity of the foot.

Hallux Valgus. Hallux valgus is common to shoe-wearers, although any continued maintenance of a position which interferes with the normal function of the first toe, (everted and pronated positions of the weight-bearing foot), will produce it (59).

Digitized by Google

It is so universally present in some degree, that it has come to be looked upon as a normal condition of those who wear shoes.

With the abduction of the first toe, there is a corresponding

FIGURE 11: Radiograph of Well Marked Hallux Valgus, Showing Absence of Hypertrophy of Head of 1st Metatarsal, as Well as an Exostosis. (Radiograph by Major J. S. Wilson, Fort Ethan Allen, Vermont.)

adduction of the first metatarsal, (a buckling effect of short shoes), consequently the width across the metatarso-phalangeal articulation is increased. The first phalanx articulates with the

Digitized by Google

external condyle of the first metatarsal, the projecting internal condyle being subjected to the pressure influences of foot covering.

In many cases, where clinically, there is an apparent exostosis, X-ray examination has revealed the fact that the projection is but the internal condyle of the metatarsal. (Figure 11.)

Short stockings and high-heeled shoes play an important role as etiologic factors. Roepke (60), considers improper footgear as the initiative, but the changed condition of the flexor hallucis as an important secondary effect.

Young (61), while examining X-ray photographs of feet deformed by hallux valgus, was impressed with the frequent occurrence of an inter-metatarseum at the head of the first metatarsal, which he considers as bearing a causative relationship to the deformity. As the inter-metatarseum develops in its abnormal position it produces width which forces the external border of the base of the first metatarsal downward, which, in turn, produces an increased tension of the ligaments, the tendons, and particularly the flexor brevis hallucis and extensor longus hallucis. This is followed by a weakening of the metatarsophalangeal internal lateral ligament and the production of the hallux valgus.

Periostitis, leading to an hypotrophy of the head of the metatarsal has not been found in all cases where clinically such would have seemed to be the case; nor is there a bursa formation in all cases where there are evidences of external inflammation.

Shoes. The *history of footgear* dates back to the beginning of civilization.

In ancient Egypt and Assyria, those of rank wore the sandal, a protection, at first, merely to the sole. As these were people of a semi-tropical region, no thought was given to further protection.

The Egyptian sandal (Fig. 12), consisted of sole-piece, maintained in position by an inter-toe strap connected with a strap which passed around the ankle. The Assyrians were the first to employ the heel-piece (Fig. 13), seen at a later period, in the Greek and Roman "shoe" (Fig. 14), somewhat exaggerated.

In countries not so favored with a warm climate greater protection to the foot became a necessity during certain times of the year, a more complete covering was made by shaping about

Digitized by Google

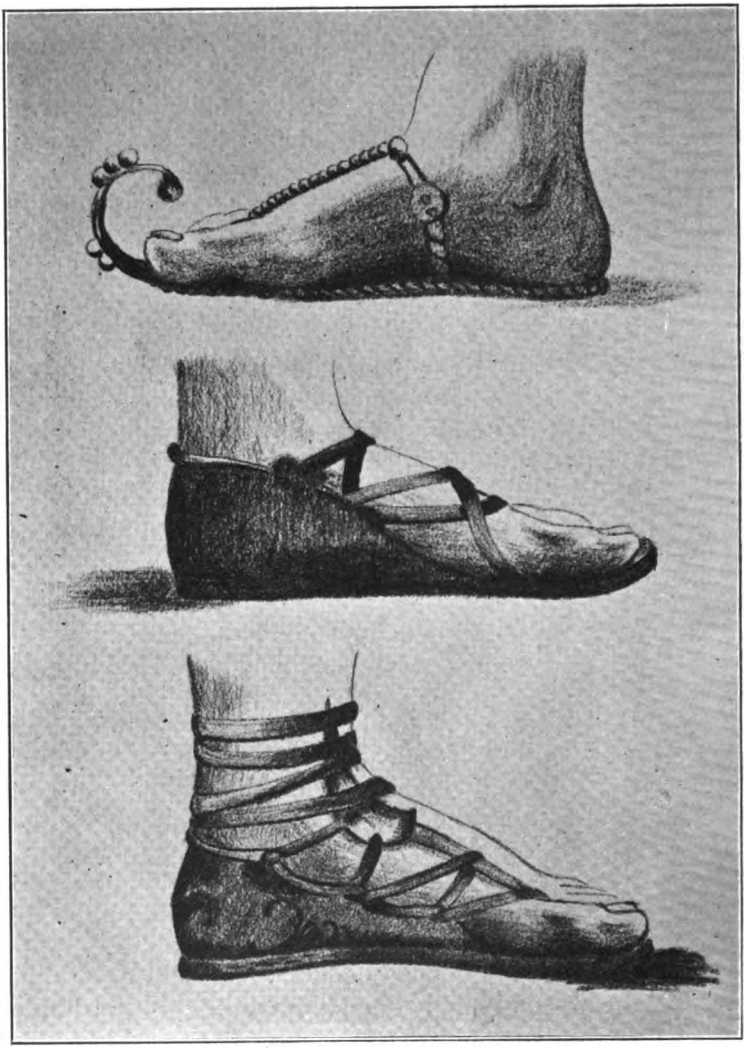


FIGURE 12: Egyptian Sandal. La Science en Famille. Reproduced in Scientific Amer. Supp., 943.

FIGURE 13: Assyrian Sandal. La Science en Famille. Reproduced in Sc. Amer. Supp., No. 943.

FIGURE 14: Roman Shoe. La Science en Famille. Reproduced in Sc. Amer. Supp., No. 943.

Digitized by Google

the foot, rawhide, (hairy side out), and holding it in place with foot and ankle straps. Such was the shoe used by the Germans in the bronze age.

As it passed through the Carlovingian epoch and the age of Chivalry, it became fantastic in shape and materials of which it was made, reaching a fastigium of freakishness in the shoe of the Burgundian Knight, when the inconvenient pointed shoe, (a relative mark of nobility), was made of iron.

At the beginning of the Sixteenth Century fashions in shoes suffered a complete transformation, becoming simply a toe

FIGURE 15: Military Boot of the Thirty Years War. La Science en Famille. Reproduced in Sc. Amer. Supp., 945.

covering, held in place by a small counter for the heel. Pointed toes, many inches in length, became the "goose bill," and the "bear's foot" shoe.

It was during the Thirty Years' War that more than usual attention was given to the manufacture of boots by emulating boot-makers, and the proto-type of the shoe, as worn at present, was evolved (Fig. 15). It was at this time that the heel was

Digitized by Google

was added, presumably to lend stature to the elegant coxcombs of the period.

The fashion of wearing boots or shoes alternated from the latter period until about 1820 when trousers came into vogue, and this, led to the adoption of the low, unornamented shoes, which, with modifications incident to rapid strides in the perfection of machinery for making shoes during the nineteenth century, are worn at present.

Just as fashions in shoes changed in the past, so they vary now, though not to such a radical extent. Apparently perfection has been attained in the component parts, but monotony of contour is not in accordance with our advanced ideas of style, so the lasts, upon which the conventional shoes are shaped, though they have never conformed to the shape of the foot, must change from season to season, subservient as they are to the cupidity of enterprising manufacturers.

Where a large body of men is furnished shoes which are a prescribed part of their wearing apparel, the conventional pattern ceases to be a factor to be reckoned with, and given the style best adapted to the purposes for which the shoe is to be used, the only other problem in connection with footwear (fitting), becomes more easy of solution.

The *style or contour* of a shoe should be so designed that its effects on the foot for which it is intended will be least harmful. Just as the hand of the manual laborer becomes modified from rough usage, so, too, will the foot of the pedestrian undergo changes not seen in the foot of the individual who walks but little. The shoe, at its best, is going to have some effect on the foot of the wearer, but to limit this to a harmless extent should be the aim of those who fashion this important part of our protective covering.

The contour of a shoe should conform to basic principles, summed up as follows:

The inside line of the forward part of the shoe should form a straight line, or one approximately so. The shoe to be so constructed as to have an inward twist at the shank, (maintained by a piece of flat spring-steel which would also perform the function of upholding the arch and at the same time, permit that degree of flexibility necessary when the foot is to functionate

Digitized by Google

in its consecutive movements), from heel along outer side of foot to ball. This twist of the shoe at the shank produces a slight adduction of the foot and tends to maintain a strong position (62). It should not be too great, however, else corns are

FIGURE 16: Radiograph of a Foot not Supporting the Weight of the Body.

apt to develop on the smaller toes. There should be an abundance of room across the ball of the foot, in excess of the width of the weight-bearing foot at this point, for it must be remembered that the shoe is intended for a foot that is going to bear weight greater than that of the body, and, at times, exercise excessively.

Digitized by Google

In weight bearing, the first metatarsal deviates from the second (Figs. 16-17).

The *sole* should be flat across, to preserve a secure foundation

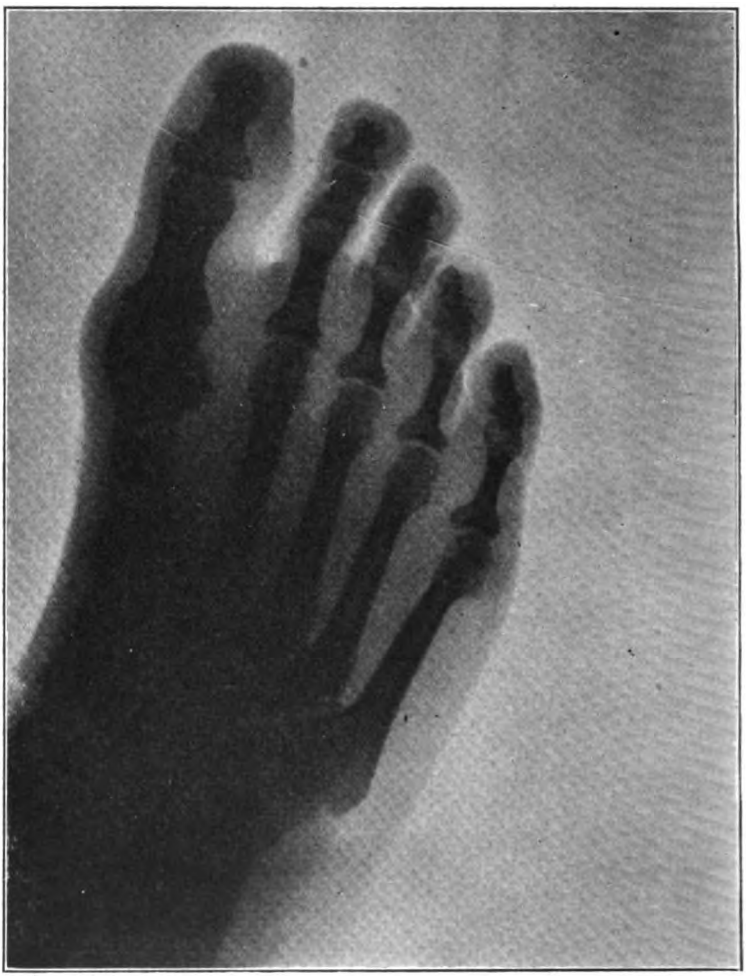


FIGURE 17: Radiograph of a Foot (same as in Figure 16) supporting the weight of the Body, Demonstrating the Lateral Spread of the Anterior Arch. (Radiographs in this and in Fig. 16, by Major J. S. Wilson.)

for the foot, but may have a slight upward curve at its forward end to prevent the toe catching in unevenly raised places on the walking surface.

Digitized by Google

The *heel,* when it is indispensible, as in the military service, should be low, broad, long and flat. In the standing position, the heel is the sustaining point for the weight of the body (63), assisted by the forward points of the tripod which check any rotatory motion in the heel, as the body-weight is thrown to one or the other side. It is obvious that heightening of the heel will transpose the body's center of gravity forward onto the forefoot, and thereby throw an undue amount of strain upon a part unequal to it.

The *fit of a shoe* is correlative to its contour. Pressure on the forefoot results in a pathological weakening of the mechanism, varying in proportion to intermittency and amount, more especially when there are other contributing influences. The best efforts of a foot cannot be put forth when its intrinsic muscles are inactive from pressure atrophy. At the same time, a shoe to be of any service or comfort, must be so fitted, that when in motion, there will be a minimum of friction between the foot and shoe.

Stability may be attained by a close fit back of the mid-tarsus, where lateral pressure at the heel, and from the heel, forward and upward to the front of the ankle joint, and around the ankle, will have no undue influence on the integrity of the foot. Teno-synovitis will be induced by continuous pressure at a particular point, as from uneveness in construction resulting from faulty workmanship, and is seen occasionally in mountain-climbers, where there is pressure from the rim of the upper (64), in the unaccustomed attitude of the foot, but is not to be anticipated in a shoe which has a generally distributed pressure, a pressure only sufficient to prevent a forward motion of the foot within the shoe (65).

We cannot hope to reach the ideal of conditions where each man will have a shoe made especially for him, but with the above points in mind, there are no great obstacles to be overcome in the perfection of a last which will best answer the purposes for which the military shoe is desired.

Whether the specifications now governing the manufacture of the issue shoe were based upon the measurements of a great number of military feet, or whether they were accepted on the dictum of last makers who supposedly had the years of experience behind

Digitized by Google

them, the writer is unprepared to say, however, he cannot reconcile them, to the measurements he has made of the feet of nearly two thousand foot soldiers. It is pracically impossible to fit the normal foot with the issue shoe so as to have the proper degree of length of shoe and breadth across the ball without having to select one whose measurements are too great at the heel and ankle, the very places where the fit should be snug. If the forefoot is fitted, the roominess at the back of the shoe is so great that the foot slides forward and backward giving rise to friction effects which result in a disability on the march; and if this latter tendency is combatted, it is done so at the expense of a freedom of the tarsus and digits, which is equally disabling, for no soldier can march to the best advantage when his steps cease to be reflex, and nothing causes foot-tire so quickly as lateral or downward pressure on the fore foot.

Perhaps this may be more clearly explained by comparing the inside measurements of a garrison shoe with the average measurements of a soldier's foot. It must first be explained that the length of a garrison shoe should be at least two sizes* greater than that of the foot that is, a foot measuring size "6" cannot very well wear a shoe under size "8;" and it should be at least as wide across the ball as the width of the weight-bearing foot at a corresponding part, to permit the normal spread of the foot at the metatarsophalangeal articulation.

The widths of the lasts, upon which the garrison shoes are made, vary definitely in accordance with the size of the last,—each size having five "widths," from "C" to "F," including "EE," differing by one-twelfth of an inch, and each "width" of one size is one-twelfth inch greater than the corresponding "width" of the next smaller size.

Suppose, for example, we have measured a man's foot and have determined its length to be size "6" and its width across the ball to be three and nine-twelfths inches, then an 8 "C" shoe is the minimum size shoe for him to wear, provided the other measurements of the shoe correspond. On analyzing the other foot measurements, (Fig. 18), however, we discover that though we

*Existing orders require that the marching shoe be three sizes longer than the foot.

Digitized by Google

have obtained sufficient length and width in our 8 "C" shoe, there is a considerable amount of diffierence between the circumference of the ball and instep of the shoe and corresponding measurement of the foot, which results in a pressure effect on the fore-foot both laterally and from above downward.

Compare the following measurements; the first being a table

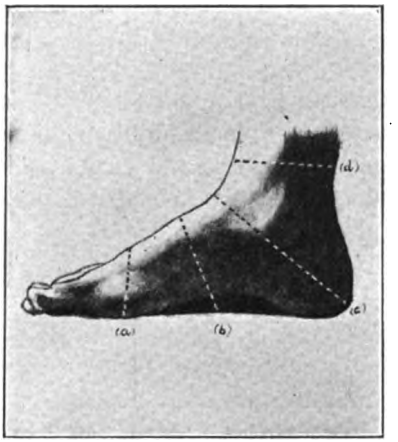


FIGURE 18: (a) Ball. (b) Instep. (c) Heel. (d) Ankle.

based on specifications furnished by the Quartermaster General, and G. O., 48, current series, War Department; the second, average measurements of a number of feet size "6" in length and three and three-fourths inches across the ball in weight bearing:

TABLE 1.

Width.	Garrison Shoe.	Size 8
"C"	Ball, circumference	8¾
	Instep, circumference	9⅛
	Heel	13
	Length, inches	11 1/8
	Width of ball	3¾
	Across heel	2½
	Ankle, circumference	Varies.

Digitized by Google

TABLE 2.

	Composite Foot.	
	Ball, circumference	9½
	Instep, circumference	10¼
	Heel, circumference	13
	Length, inches	10²/₈
	Width of ball	3¼
	Across heel	2½
	Ankle, circumference	8½

It is evident that we cannot put an 8 "C" shoe on the composite foot in Table 2, and, incidentally, it is equally evident that we cannot determine the size of the shoe a soldier is to wear by basing our estimate on the two principal diameters, so to speak, of the foot.

TABLE 3.

Width.	Garrison Shoe.	Size.	
		7 1-2	8
"F"	Ball, circumf.	9⅜	9¾
	Instep, circumf.	10	10⅛
	Heel, circumf.	13⅞	14
	Length	11	11¹/₈
	Width of ball	4¹/₂₄	4¹/₁₂
	Across heel	2¾	2¾

The nearest approach to the size of the above foot is either a number 7½ "F" or 8 "F," shown in Table 3. Although a much wider shoe has been selected than was necessary, and there is an increase in circumference of the ball in both shoes, the heel and ankle measurements have been increased beyond a point where they were already too large.

There is no possible combination of widths and sizes, which will give the desired effects, and the remark applies with equal force to the marching shoe.

If the figures of these tables be accepted, then the lasts upon which our issue shoes are made, are too small (flat) in front and too large back of the mid-tarsus.

There is much less variance in heel and ankle measurements of feet of the same length and width of ball, than is found in front

Digitized by Google

of the mid-tarsus, and what difference there is can be counteracted by an adaptable lace-upper, if the upper has been cut with this in view; consequently, the front of the shoe may be sufficiently large to fit the maximum, without there being any bad effects when it is worn by the minimum type of fore-foot. In other words, fit the back of the foot with a shoe whose ball and instep measurements are slightly in excess of those of the foot. Make the shoe conform to the foot, and not the converse, since new leather will

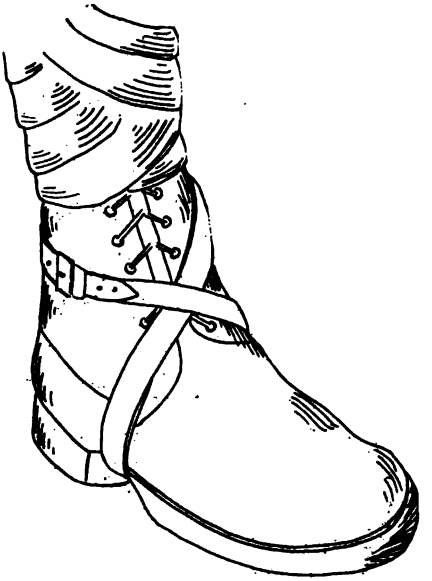


FIGURE 19: Marching Strap For Blistered Feet. Coindreau, Reproduced in Jour. R. A. M. C., Feb. 1911.

not stretch much beyond a twelfth of an inch even when a stretching apparatus is used.

The marching strap of the French Army (66), (Fig. 19), accomplishes the snug fit at the back of a large shoe and practically eliminates a to and fro movement with its consequent many changing points of contact.

It may not be inapropos to mention, at this time, some ***additional defects*** in the issue shoe, which, though not apparent to the casual observer, become much exaggerated after the shoe has been worn. There seems to be little if any arching of the shank, consequently,

Digitized by Google

when the heel is flat on the resting surface, the sole takes an elevated position shown in figure 20. In figure 21 another shoe, manufactured by a different contractor, is shown, with the sole

FIGURE 20: Inner Surface Garrison Shoe, Heel flat on Surface, Sole elevated ¼ inch.

FIGURE 21: Inner Surface Garrison Shoe, Make Different from that in Fig. 20, with Elevation of Sole nearly ½ inch.

FIGURE 22: Inner Surfaces Garrison Shoes, showing sinking at shank. (Photographed by Major P. C. Field, Fort Slocum, N. Y.)

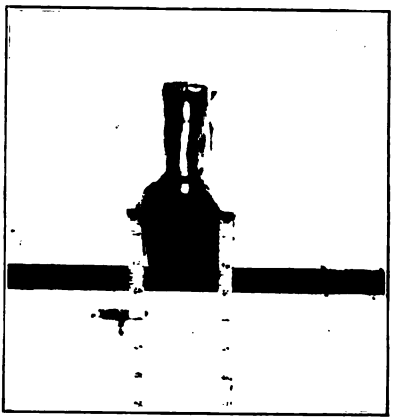


FIGURE 23: Posterior View Right Garrison Shoe, Showing Greater Thickness of Outer Side of Heel.

in even a higher position. When this shoe is worn and the sole is forced down to a plane coincident to that of the bottom of the heel, the shank becomes broken and the shoe assumes the rocker-

Digitized by Google

shape, shown in an extreme case in figure 22. About seventy-five per cent of the issue shoes have a more or less lowering of the shank after they have been worn for a short while. Another defect, though not so constant as the weakness of the shank, is the one shown in figure 23. This increase in height of the outer side of the heel throws the body weight on the inner and weaker segment of the foot-dome, and acts as a constant influence in the production of weak foot. Though the first defect is a fault in design and can be corrected only by refashioning the lasts upon which the shoes are made, the second is due to careless workmanship.

Fortunately the discomforting flat toe of the issue shoe has at last received recognition, and attempts are being made to replace it with the more rational box toe.

Stockings. Fitting the foot with a proper size stocking is about as vague a procedure in most minds as is the fitting of shoes. And yet, a poorly fitting stocking, that is, one which is too tight, is as productive of bad effects, almost, as the small shoe. The most common direct results are ingrown nail and hallux valgus, though crumpled toes may be due in large part to too short a stocking and it may contribute to the more serious effects of a narrow shoe. The sizes of the issue stocking, (cotton and light wool) are five in number, from 9½ to 11½, and correspond in length to inches from heel to toe when the stocking is flattened laterally (as it is when new).

The conventional stocking is vicious in its effects on the foot only when its length is not sufficient to allow for the necessary compensation in width after it is put on the foot.

A foot measuring 10 2-3 inches in length and 3¾ inches in width cannot wear a stocking under size 11 without there being a constant tendency to the production of ingrown nail, hallux valgus, crumpled toes, etc.

It is very doubtful whether there is a man in the service who can wear the 9½ stocking without injuring his foot in some way. On the other hand there is a large number of men who have feet size 9½, (some very muscular), 11½ inches in length, and yet we compel them to constantly wear a stocking which is much too small for them.

The thicker the stocking, the greater the degree of compression on the foot, naturally, so this remark applies particularly to the thicker stockings used in marching.

Digitized by Google

From the foregoing observations the following deductions may be made:

1. Visual examination will not reveal the potentiality of a given foot.
2. The strength of a foot varies in proportion to the potentiality of the supinator group of muscles.
3. Weakness in a foot may be prevented by proper exercises and footwear.
4. Certain types of weak feet may, with profit, be treated in the service.
5. Incipient foot-weakness may be accurately determined by means of a proper apparatus, such as the one described.
6. The issue shoe has several defects, chief of which, is its disproportion between front and back.
7. A proper last may be evolved which will be best suited to the military foot.
8. There is at present an illogical supply of sizes of issue stockings.

BIBLIOGRAPHICAL REFERENCES.

(1) Bradford. The Human Foot in Art. Trans. Amer. Orth. Ass'n, Vol. X.
(2) Casse. The Plantar Arch. An Essay on its Formation, etc. Thèse de doct. Lyon, 1900.
(3) Baker. Foot. Ref. Handb'k Med. Sc., Vol IV.
(4) Lovett and Cotton. Some Practical Points in the Anatomy of the Foot. Trans. Amer. Orth. Ass'n, Vol. II.
(5) Hubscher. Pes Valgus. Zeit für orth. Chir., Band XIII, Heft 1.
(6) Nicoladoni. The Importance of the Tibialis Anticus and the Plantar Muscles in Flat-foot. Deutsch. Zeit. für Chir., Band LXVII.
(7) Giani. The Tibialis Anticus and the Pathogenesis of Static-mechanical Flat-foot. Zeit. für orth. Chir., Band XXIII, Heft 3-4.
(8) Osgood. The Comparative Strength of the Adductor and Abductor Groups in the Foot. Amer. Jour. Orth. Surg., Vol. V., 3.
(9) Gocht. Tendon Operation in Pes Plano-valgus. Zeit. für orth. Chir., Band XIV, Heft 3-4.
(10) Schultze. Treatment of Static Flat-foot by Redressement Force and Tendon-plastic. Zeit. für orth. Chir., Band XIII, Heft 2-3.
(11) Anthony. Evolution of the Human Foot. Bull. et Mem. Soc. d'Anthrop, de Paris t. IV, 1903.
(12) Idem.

Digitized by Google

(13) Huxley. Man's Place in Nature.
(14) Bennett. Wanderings in New South Wales.
(15) Lazarus. The Morphology of the Foot Skeleton. Morpholog. Jahrb., Band XXIV, Heft 1.
(16) Volkov. Variations in Foot Skeletons in the Primates and Human Races. Bull. et Mem. Soc. d'Anthrop. de Paris, t. IV-V.
(17) Testut. Anthropological Investigations on the Quarternary Skeleton of Chancelade (Dordogne). Bull. Soc. d'Anthrop. de Lyon, t. VIII, 1889.
(18) Sarasin. The Results of a Scientific Investigation in Ceylon. The Veddahs of Ceylon. 1893.
(19) Hoffmann. A Statistical Study of the Relation Between the Height of the Longitudinal Arch and the Function of the Foot. Amer. Med., Aug., 1907. Conclusions Drawn from a Comparative Study of the Feet of Barefooted and Shoe-wearing Peoples. Amer. Jour. Orth. Surg., Vol. III, 2.
(20) Hoke and Bradford. An Anatomical Consideration of Pronation and its Relation to Treatment. Trans. Amer. Orth. Ass'n, Vol. XIII.
(21) Tubby. Deformities: Treatise on Orthopedic Surgery.
(22) Whitman. A Study of the Weak Foot. Trans. Amer. Orth. Ass'n, Vol. VIII.
(23) Lovett and Cotton. Loc. cit.
(24) Dane. Some Effects upon the Leg of Pronation of the Foot. Trans. A. O. A., X.
(25) Lorenz. A Study of the Acquired Flat-foot. Recent Investigations. Stuttgart, 1883.
(26) Dane. The Arch of the Foot. Trans. Amer. Orth. Ass'n, Vol. XI.
(27) Lovett. The Occurrence of Painful Affections of the Feet Among Trained Nurses. Amer. Jour. Orth. Surg., Vol. I.
(28) Osgood. Loc. cit.
(29) Bardenheuer. Valgo Planus. Zeit. für orth. Chir., Band XXVI.
(30) Hovorka. Supinator Weakness in Flat Foot and its Treatment. Zeit für orth, Chir., Band XII, Heft 3.
(31) Bardenheuer. Loc. cit.
(32) Thomas, H. O., Liverpool. Contributions to Med. and Surg. May, 1890.
(33) Taylor, R. T. Use and Abuse of Foot-plates. Amer. Jour. Orth. Surg., v. 7.
(34) Sampson. Proper Foot-wear and the Treatment of Weakened and Flat Feet by Mechanical Devices for Maintaining the Adducted Position. Johns Hopkins Hospital Bull., Jan., 1902.
(35) Osgood. The Treatment of Faulty Weight-bearing in "Weak" and "Flat" Feet. Amer. Jour. Orth. Surg., Vol. IV, 2.
(36) Whitman. Observations on Seventy-five Cases of Flat Foot. Trans. Amer. Orth. Ass'n, Vol. I.
(37) Goldthwait, Painter and Osgood. Diseases of Bones and Joints.

Digitized by Google

(38) Taylor. Loc. cit.
(39) Tuckerman. Flat-foot: A Mechanical Problem Solved by an Ideal Plate, etc. Amer. Med., Oct., 1907.
(40) Hoke and Bradford. Loc. cit.
(41) Wilson. Flat-foot Support Made of Celluloid and Steel Wire. Muen. med. Woch., Feb., 1903. (Ab. Amer. Med.)
(42) V. de Knop. Orthopedic Plate for Painful Flat-foot. La Revue Medico social, 1909.
(43) Forbes. The Place of Braces in the Treatment of Weak, Pronated and Flat Feet, with Especial Reference to a Simple Method for the Preparation of the Plaster Cast on Which They are Fashioned. Boston Med. and Surg. Jour., Mar. 3, 1910.
(44) Gocht. Loc. cit.
(45) Schultze. Loc. cit.
(46) Antonelli. Therapy of Flat-foot. Zeit. für orth. Chir., Band XIII, Heft 4.
(47) Nicoladoni. Loc. cit.
(48) Cauchoix. Open Operative Treatment of Inveterate Valgus Flat-foot. Revue de Chir., Dec. 10, 1910.
(49) Painter. Peroneal Resection as a Means of Correction in Rigid Valgus. Boston Med. and Surg. Jour., Aug. 10, 1805.
(50) Wilson and Patterson. The Combined Operation of Arthrodesis and Transplantation of the Tendon of the Extensor Proprius Hallucis for the Relief of Flat-foot. Amer. Med., May 6, 1905.
(51) Ryerson. Tendon Transplantation in Flat-foot. Amer. Jour. Orth. Surg., Vol. 7.
(52) Walsham. Treatment of Rigid Degrees of Flat-foot by the Tallerman-Sheffield Localized Hot-air Bath. Trans. Amer. Orth. Ass'n, Vol. VIII.
(53) Keppler. Practical Deductions Regarding Weak Feet. Amer. Jour. Surg., June, 1909.
(54) Franke. On Pain in the Sole of the Foot and its Treatment, etc. Deutsch. med. Woch., 51-52.
(55) Morton. Clinical Lectures on Cases of Painful Affections of the Foot. Phila. Med. Times, Vol. 17.
(56) Hohmann. Metatarsalgia. Centralblatt für Chir. und Mechan. Orthopädic, Januar, 1909.
(57) Schanz. Progress in Treatment of Flat-foot Disturbances. Deutsche med. Woch., Band XXXV, Heft. 2.
(58) Whitman. *Observations on Morton's Painful Affection of the Fourth Metatarso-phalangeal Articulation and Similar Affections of the Metatarsal Region, etc. Trans. Amer. Orth. Ass'n, Vol. XI.
(59) Wilson. An Analysis of 152 Cases of Hallux Valgus. Amer. Jour. Orth. Surg., Vol. III.
(60) Roepke. Hallux Valgus. Deutsche Zeit. für. Chir., Band LXXI, Heft. 9.

Digitized by Google

(61) Young. Etiology of Hallux Valgus. Amer. Jour. Orth. Surg., Vol. 7.
(62) Sampson. Loc. cit.
(63) Bradford. Human Gait. Trans. Amer. Orth. Ass'n, Vol. X.
(64) Schanz. A Typical Affection of the Tendo Achillis. Centralbl. für Chir., Dec. 2, 1905.
(65) Coindreau. A Marching Strap for Blistered Feet. Arch. de Med. et de Phar. Mil., Oct., 1910. Rev. in Jour. Royal Army Med. Corps, Feb., 1911.
(66) Idem.

Digitized by Google

THE IMMEDIATE CLINICAL RESULTS OF THE USE OF SALVARSAN IN THE ARMY.*

By Captain HENRY J. NICHOLS, Medical Corps, U. S. Army.

IT is generally recognized that mercury and potassium iodide, while effective in many instances, are not ideal remedies in the treatment of syphilis. Some cases are very refractory; others are intolerant and at best a long time is required in ordinary cases to destroy the spirochaetae. The situation in the army in regard to these drugs may be illustrated by the number of discharges for disability. Thus, in 1909, 122 or 6.6% of 1,839 cases of syphilis were so damaged by the infection that they became unfit for military service; and this occurred in spite of treatment which, as a rule, is better than that the patients would have received in civil life. In view of these figures and of every medical officer's general experience with ordinary cases no argument is needed for the statement that, if a more effective and speedier way of combatting syphilis is available, it can be put to especially good use in the army.

When Salvarsan was introduced the Surgeon General authorized a thorough trial of this new specific. A liberal allowance of the drug was issued and a circular No. 2, (S. G. O. Dec. 13, 1910), was sent out recommending the intramuscular and intravenous methods of administration and calling for a statement of the use of the drug and a report on the clinical results at the end of a month. An analysis of these reports forms the basis of this paper.

From January to September 1st, 1911, over 1,200 patients have been treated with Salvarsan, many of them with several injections; detailed reports of 492 injections in 434 cases have been received. The method of administration and the degree of the reaction in 422 of these cases is shown in the following table:

	Moderate.	Severe.	Total.
Intramuscular	142, 70%	61, 30%	203
Intravenous	125, 67%	60, 33%	185
Subcutaneous	28, 82%	6, 18%	34
	295, 70%	127, 30%	422

*Presented at the 20th Annual Meeting of the Association of Military Surgeons at Milwaukee, Wis., Sept. 26-29, 1911. Published with permission of the Surgeon General, U. S. Army.

Digitized by Google

It will be seen from this table that with both the intramuscular and intravenous methods about one-third of the reactions were severe. In the case of the intramuscular method it is probable that this figure cannot be much reduced and this fact is one of the arguments in favor of the intravenous method with which the severe reactions are not as objectionable as those following intramuscular injections. Moreover, improvement in technique should considerably reduce the number of severe reactions following intravenous injections. In any case the reactions are no more severe than frequently occur after surgical operations and would not interfere with the use of the drug if the end results are sufficiently good.

The following table shows the immediate effect of all the methods of administration on various lesions:

	Healed.	Not Healed.
Primary lesions	30	2
Secondary eruptions	92	4
Mucous patches	128	4
Rupia	5	
Iritis	10	
Alopecia	3	
Ulcers	14	3
Psoriasis	11	
Joint pains	11	2
Headache	4	2
Gummata	7	
Paralysis	2	1
	314	18
	94%	6%

Hence, in 94% of the lesions, the immediate effects at the end of a month were excellent. No effort has been made to go into further detail in regard to previous treatment or exact description of these lesions as the results agree with those of nearly every observer. The question of relapses will be discussed later; but, whatever the final result, it is evident that in Salvarsan we have an effective means of getting quick control of almost every lesion of syphilis and this, of course, means a great deal in the way of arresting destructive lesions and of reducing the time spent on sick report and the danger of contagion.

Captain Craig has analyzed the immediate effect on the Wassermann reaction in 225 of these cases and concludes that the immediate results in this respect are also very favorable; in 72% of the cases the reaction became negative inside of two months.

Digitized by Google

COMPLICATIONS.

Intramuscular Method: One case of persistent sciatica with fever has been reported as following an injection. This result, however, is, of course, not essential to the method. One case of abscess occurred which was probably due to riding on the day following the injection.

Intravenous Method: In four cases inflammation of the skin and cellular tissues of the arm occurred as a result of the escape of fluid under the skin; and in one of the cases the skin became necrotic. One case of thrombosis is reported; but, as was stated above, none of these occurrences are essential to the method.

One patient, colored, in the secondary stage, received two intramuscular injections, on January 18th and February 23rd. On March 16th he developed a confused mental state which lasted about one month and then cleared up. In the opinion of Capt. Richards this was a toxic psychosis in an especially susceptible patient.

One case is especially instructive along the lines of coincidence. This patient, who was in the Philippines, received an intramuscular injection March 23rd. Four hours later he went into coma and died on March 26th. An autopsy demonstrated a clear case of cerebro-spinal meningitis which was concurrent.

In one other case an epileptiform seizure of syphilitic origin occurred about 15 minutes before Salvarsan was to be given.

RELAPSES AFFECTING THE NERVOUS SYSTEM.

Three cases are examples of what Ehrlich calls "neuro-recidiv." Ehrlich believes that, in certain individuals in the early secondary stage, a few spirochaetae localized about the nerves, where the circulation is not free, may escape destruction after Salvarsan treatment and may then multiply and produce nervous symptoms such as deafness or blindness. According to other observers these symptoms are due to the drug itself, but there is strong evidence that the lesions are of syphilitic origin.

One patient received an intravenous injection in the Philippines on April 1st, for an infection which appeared in March. On May 15th, while on the transport he became quite deaf in both ears. A second injection was given on June 21st, which produced great

Digitized by Google

improvement. On July 25th he developed an optic neuritis of the left eye which persisted in spite of a third injection and administration of mercury. Capt. Reasoner, who was in charge of the case, calls attention to the fact that the Wassermann reaction remained negative throughout so that there was no way of anticipating the results and remarks that mercury should have been given continuously.

The second case was in an epileptic in the secondary stage; on October 18th he received a subcutaneous injection which was not absorbed; this was followed on November 19th by an intramuscular injection which cleared up all visible lesions. In January he had several convulsions and an intravenous injection was given January 10th. In February he developed a hemorrhagic retinitis of the right eye, and neuro-retinitis with iritis of the left eye which gradually subsided under mercury. In this case, too, the Wassermann reaction was negative at the time the nervous symptoms appeared and gradually developed again. This case was clearly a neuropathic one and should have been kept under continuous mercurial treatment.

The third case had an epileptiform seizure two months after an intravenous and intramuscular treatment. This attack was clearly of syphilitic nature as the Wassermann reaction returned at the same time and further treatment with Salvarsan and mercury put an end to the condition.

One case died after two intravenous injections from uraemia, and the cause of the uraemia is not clear as among the thousand injections that have been given in all parts of the world, kidney complications are very rare. This case was in the active secondary stage and was given intravenous injections on June 26th and July 7th. All visible lesions healed rapidly, but on July 11th convulsions and coma of uraemic nature set in and, in spite of heroic treatment for uraemia, the patient died on July 13th. An autopsy was made and microscopical examination of the tissues showed an intense hemorrhagic nephritis which sufficiently accounted for the fatal outcome. Aside from the nephritis a hyaline degeneration was found in the follicles of the spleen and an adhesive pleuritis and a tubercular bronchial lymph gland. The nephritis may have been a coincidence, or a latent or incipient nephritis may have been made acute by the drug. In any case

Digitized by Google

it should be emphasized that organic disease, not syphilitic, is a contraindication to Salvarsan.

In general, the small number of accidents and sequelae which occurred among this large number of cases shows that the drug can be used with comparative safety in the service.

OTHER RELAPSES.

A considerable number of these cases have relapsed clinically and still more as judged by the Wassermann reaction, while others have remained negative for a period of 8-9 months. It will necessarily be several years before Salvarsan can be given its final place in the therapeutics of syphilis; but at present it seems probable that in the primary stage and in the tertiary stage, Salvarsan, alone, in several treatments, can terminate an infection. In the secondary stage, too, where the patient has previously received a thorough course of mercury, Salvarsan seems to be able to "top off" the treatment. But in fresh secondary cases according to a second circular (No. 3, S. G. O., June 3, 1911), mercury and Salvarsan should be used to supplement each other for the present—Salvarsan to control the symptoms and mercury to assist in the final cure.

In many respects the problem of treating syphilis with Salvarsan resembles that of treating malaria; for, as James says of Panama, most of the malaria is due to relapse and not to reinfection. Salvarsan, it is true, cannot be administered as easily as quinine nor probably as continuously. On the other hand the Wassermann reaction gives an indication for treatment which is lacking in malarial infections. Eventually it should be possible to use Salvarsan according to some settled plan. In order to do this it will be necessary to have at hand all important data concerning previous history and treatment and a great advance has been made in the recent introduction of the Syphilitic Register which should contain this information, including the results of serum examinations, and which accompanies the soldier throughout his service until discharged or cured.

In conclusion it may fairly be said that the practice in the Army in regard to the treatment as well as the diagnosis of syphilis is fully abreast of the recent advances in our knowledge concerning this important cause of inefficiency and disability.

Digitized by Google

SOME DANGERS OF SALVARSAN.

By Captain MATHEW A. REASONER, Medical Corps, U. S. Army, Vancouver Barracks, Washington, and Lieutenant RAY W. MATSON, Medical Reserve Corps, U. S. Army, (Inactive List), Portland, Oregon.

THE following three cases are presented as typical of some of the complications that may follow the administration of Salvarsan.

Case No. 1. Pvt. C—., 1st Inf. Aged 29. Service 2 8-12. Single.
1-21-10 Wassermann negative 7 months before date of infection.
8-26-10 mixed lesion on penis 5 days after intercourse.
10- 1-10 secondaries which developed into severe mucous lesions, macular eruption over body, marked toxemia, fever, weakness, decrease in weight.
10-12-10 protoiodide by mouth, idiocyncrasy to mercury, salivated.
10-21-10 changed to hypodermic cautiously increasing.
11- 6-10 Wassermann positive (X).
12-15-10 Wassermann negative, manifestations much improved.
1-20-11 .6 gm. Salvarsan intramuscular, mercury stopped.
1-26-11 Wassermann positive (X).
2- 2-11 Wassermann positive (X).
2-13-11 Wassermann positive (X).
2-20-11 gained 20 pounds in weight.
4-15-11 .6 gm. Salvarsan intravenously.
4-30-11 Wassermann positive (X).
5-22-11 Wassermann negative.
6- 4-11 Wassermann negative.
6-10-11 while away from post began to notice diplopia and tinnitus and partial deafness in right ear. Severe headache.
7-15-11 seen by writer, could not hear watch with right ear, diplopia more noticeable on rotating eyes. Wassermann negative. .6 gm. Salvarsan intravenously, forced mercurialization by hypo. and inunction.
8-20-11 Hearing and eyesight both normal again. 20-20 each. Headache stopped.

Case No. 2. X, F. Bat., 2nd F. A. Aged 24. Service 3 9-12. Single.
2-10-11 intercourse with Filipino.
3- 1-11 initial lesion on penis.

Digitized by Google

3- 8-11 unknown amount of "606" intravenously at Camp Stotsenberg, P. I.
5-22-11 Wassermann negative, first seen by writers.
6-26-11 Wassermann negative.
7- 1-11 aural manifestations first began.
7-16-11 Wassermann negative, tinnitus both ears, watch 12" left ear and 4 feet right. Began inunctions.
7-25-11 .6 gm. Salvarsan intravenously. Hearing little improved, mercury by hypo.
7-31-11 hearing normal, 20-20 both ears.
8-27-11 Wassermann positive (X) though hearing still normal, had neglected treatment for three weeks while not under observation, forced mercurialization.

CASE No. 3. PVT. R—., 2nd F. A. Aged 30. Service 2 8-12. Single.
3- 8-11 initial lesion on penis one month after intercourse.
4- 1-11 states that there was a slight macular eruption on arms and chest. Salvarsan intravenously at Camp Stotsenberg, P. I. Lesions disappeared.
5-15-11 while on transport noticed partial deafness and tinnitus both ears.
6-20-11 first seen by writers. Wassermann negative. Could not hear watch with left ear and only two inches away with right.
6-21-11 .55 gm. Salvarsan intravenously, protoiodide by mouth.
6-28-11 Wassermann negative, hearing much improved.
7- 2-11 Wassermann negative, hearing still improving.
7-16-11 Wassermann negative, hearing normal.
7-24-11 Wassermann negative, soldier presented himself complaining of inability to see with left eye, photophobia and severe headache. .55 gm. Salvarsan intravenously, forced mercurialization by hypo. and inunction. Atropine cold applications, leeches, cathartics, dark room, rest in bed.
8-22-11 Wassermann negative.

On July 28, Dr. J. N. Coghlan, of Portland, very kindly examined the case and reported as follows: Neuroretinitis, left eye, manifested by congested conjunctiva, media hazy and containing a few floating bodies, retinal engorgement and signs of possible previous hemorrhages, hardly a choked disk, but having a noticeable ridge. On August 15, the case was again seen by Dr. Coghlan and he reported the media to be very hazy and to contain many floating opacities and therefore impossible to obtain a perfect view of the background. In the outer lower quadrant there was what seemed to be a suggestion of beginning detachment of the retina. On August 31, there seemed to be some improvement in the general condition, while the haziness was still very evident, yet

Digitized by Google

it was slightly less than on the last examination. In places the retina was visible and the engorged blood vessels could be seen, but over it there was a sort of a cobweb exudate covering it in places. A few floating opacities. The right eye showed much less sympathetic involvement than might be expected and was otherwise normal.

From a study of these cases there would seem to be no doubt that the manifestations are syphilitic and that Ehrlich's explanation is probably the true one; that following the destruction of the treponema in contact with the circulation and the subsequent elimination of the antibodies, as shown by the Wassermann, that there is a sudden and malignant development of some chance organisms lodged in the bony canals transmitting the cranial nerves and a corresponding lesion of the special sense involved.

In Case No. 1, the disease had existed for five months when the first injection was given and the cranial involvement appeared five months after this. This was certainly not arsenical as it came on suddenly six weeks after the second injection, it was unilateral and was cured by a third injection of Salvarsan and heavy mercurial treatment, as was Case No. 2.

In Case No. 3, the disease had existed 23 days when the first injection was given and six weeks after this the ear symptoms first appeared, and remained for one month until seen by the writers. Following the second intravenous injection and protoiodide by mouth, hearing became normal in three weeks, but in two weeks more the lesion in left eye appeared over night. The late appearance, the rapid onset, the fact that only one eye was involved and judging from analogy in the previous manifestations in this case and Cases No. 1 and 2, there would seem to be no doubt that the lesion was syphilitic.

Attention is invited to the fact that in each case the reaction had become negative and remained so during the manifestations which were local and had not existed long enough or become generalized enough to produce a positive reaction. The heavy mercurialization and Salvarsan administration doubtless prevented its later appearance in Cases No. 1 and 3.

CONCLUSIONS.

1. The literature to date would lead us to believe that these untoward effects need only be anticipated in a comparatively small

Digitized by Google

per cent of primary and secondary cases which have received Salvarsan and need not be feared in tertiary cases or in those to whom Salvarsan may be given for other purposes.

2. These manifestations are syphilitic and not arsenical.

3. It is not believed to be a safe procedure to treat primary or secondary syphilis with Salvarsan alone or with Salvarsan and mercury by mouth. The mercury in such cases should be given by hypodermic or inunction or both and patients should be kept under most careful observation. In the light of our present knowledge we can not advise Salvarsan as a routine measure.

4. No dependence can be placed upon the Wassermann as a danger signal.

5. The proper treatment of such cases will include forced mercurialization and at least in the ear cases, the administration of more Salvarsan.

6. It is believed that Salvarsan will come into marked disfavor with many and considerable harm done, due to its present haphazard administration.

7. In three cases of retinal hemorrhage observed following the administration of Salvarsan, it was noticed that in one case the patient had been playing considerably upon a wind instrument, in another that it followed a prolonged "hike" and considerable leaning over and currying horses, and in a third it came on following his work as a locomotive fireman. It would seem, therefore, that in those presenting any untoward effects that undue cranial blood pressure should be avoided.

8. The above cases were obtained from 83 treated by the writers.

Digitized by Google

A MODIFICATION OF VON BERGMANN'S OPERATION FOR HYDROCELE.

By P. A. Surgeon P. S. Rossiter, U. S. N.

Preparation.—Patient shaved and scrubbed with 2% lysol in green soap, wiped with Harrington's solution and a poultice of plain green soap left on over night. The following morning he is again scrubbed with the same solution and a wet dressing of aluminum acetate applied for 24 hours. Five hours prior to the operation he is again dressed with a fresh aluminum acetate dressing.

Position.—Patient in lithotomy position. Dressings removed and scrotum caught in sterile towel. Penis wrapped in sterile gauze and held out of way. Operator stands between patient's thighs. The scrotum is held by an assistant standing on patient's right and reaching across the abdomen.

OPERATION.

1. *Incision.*—7 to 15 cm. in length, according to size of tumor, along its anterior aspect of tumor and carried well up on cord so as to facilitate 2nd step of operation. Incision is carried through all the overlying tissues to the cord and tunica vaginalis. (See Fig. 1.)

2. Two or more fingers are now introduced and the unopened tunica vaginalis shelled away from the scrotum. The cord is also isolated well up towards the inguinal ring. The gubernaculum testis is cut if necessary and the tumor pendant from the cord turned out onto a sterile towel. (See Fig. 2.)

3. The tunica vaginalis is now punctured on the anterior and inferior aspect by trocar and cannula, the hydrocele fluid drawn off and the cannula withdrawn.

4. A grooved director is now inserted in the collapsed tunica through the hole left by the cannula and the tunica slit, by knife or scissors, along its anterior aspect, well up on the cord and the flaps turned back. This exposes the testicle and epididymis,

Digitized by Google

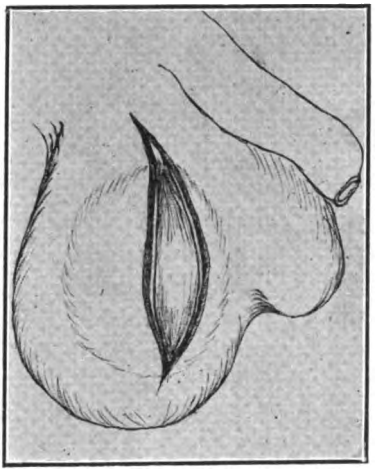


Fig. No. 1.—Shows incision through all the overlying tissues to the cord and tunica vaginalis.

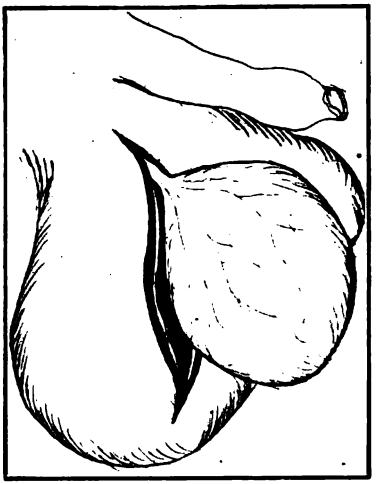


Fig. No. 2.—Shows tumor pendant from the cord, shelled away from scrotum and delivered through the incision.

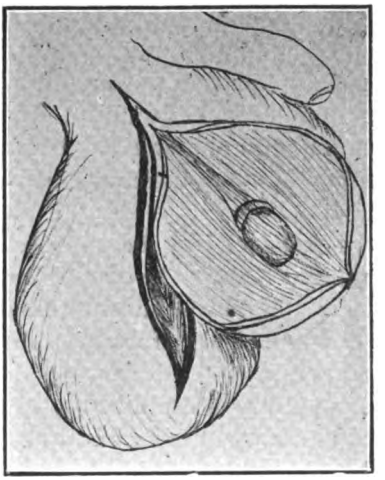


Fig. No. 3.—Shows the fluid evacuated, tunica slit along its anterior aspect, flaps turned back, and testicle and epididymis covered by visceral layer of the tunica.

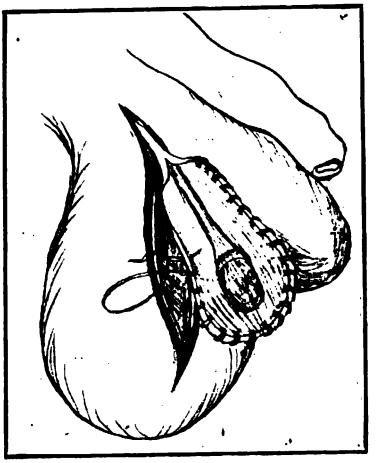


Fig. No. 4.—Shows parietal layer of tunica trimmed close to cord and testicle, and cut edges partly sewn together by a continuous overhand whip-stitch of fine catgut.
Testicle ready upon completion of suture to be returned to the scrotum.

Digitized by Google

usually somewhat flattened and elongated from pressure, with the cord extending therefrom, lying near the middle of this flap and covered by the visceral layer of the tunica. (See Fig. 3.)

5. The parietal layer of the tunica is now seized and, beginning 1 cm. from the cord on one side, is trimmed with curved scissors to within 1-1.5 cm. of the epididymis and testicle all the way around to within 1 cm. of the cord on the other side. All large, bleeding vessels are clamped and tied.

6. Profuse oozing always occurs from the cut edges of the tunica and is usually difficult to arrest, by any other method. In this it is checked temporarily by hot applications of sterile saline solution and the two layers of the cut tunica sutured together by a continuous, overhand whip-stitch of fine catgut, thus closing the raw edges and permanently stopping all oozing. (See Fig. 4.)

At this stage any existent varicocele is dealt with if necessary.

7. The scrotal sac is now irrigated with saline solution, the testicle returned and the external wound closed, without drainage, by interrupted silk or silkwormgut sutures, the edges of the wound being slightly everted to prevent inturning of the skin.

A wet dressing of aluminum acetate, well supported, is applied and the patient put to bed. The wound is redressed on the third day and the stitches removed on the 7th to 9th day.

In 17 cases on which I have operated by this method the results have been uniformly good. There has been no undue adhesion of the testicle. Function has been continued or restored. There has been no hemorrhage. There can, of course, be no recurrence.

Digitized by Google

CURRENT LITERATURE

Titles marked with an asterisk (*) are abstracted below.

BELGIUM.

Archives Médicales Belges,

November, 1911.

1 The Internal Secretions. M. Boya.
2 Contraindications to the Employment of Hypodermoclysis. M. Welsch.

C. F. CRAIG.

FRANCE.

Archives de Médecine et de Pharmacie Militaires,

December, 1911.

3 Seven Cases of Malta Fever Observed in the Pyrenees. Basséres et Coste.
4 *Rabies and its Prophylaxis in the French Army. Grysez et Dupuich.
5 Note on a Kind of Traumatism Used by the Arabs. Physical Development and Military Valour in the Basque Race. Levèque.

4. **Rabies and its Prophylaxis in the French Army.**—From 1862 to 1900, 12 persons in the army died of rabies in France and 25 in Algiers. Since 1900 no deaths have occurred, although in France 152 soldiers have been treated. Treatment began in France in 1886; before this date there were 11 deaths, since then, 1 death. The latest instructions dated July, 1911, direct that bites shall be cauterized with the thermo-cautery or nitric acid; the animal in question shall not be killed, but shall be kept under observation by a veterinarian 10 days; if the animal dies in this time, or disappears, the patient will at once be sent to the hospital at Lille; if the animal has been killed the head will be sent at once to the Pasteur Institute at Lille.

H. J. NICHOLS.

Digitized by Google

Archives de Médecine et Pharmacie Navales,

December, 1911.

6 Four Years' Service (in tuberculosis work), Naval Hospital, Rochefort. M. le Dr. A. Bartet.
7 *Report of General Inspection of the Armored Cruiser "Admiral Aube." M. le Dr. Cazamian.
8 Trans-vesical Prostatectomy.
9 Modification of Instruction Relative to School of Medicine and Pharmacy.

7. Sanitary Inspection of the "Admiral Aube."—Of distinct value, and interest to all students of naval hygiene, are the reports of the sanitary inspection of the ships of the French Navy. The value of the reports consists largely in the example of conscientious and detailed completeness in the study of the most important factors, bearing upon the physical efficiency of the ship's company. In his report of the inspection of the "Admiral Aube," the writer remarks "It is always wrong in our opinion, to leave a question, whatever it may be, without pushing ahead and seeking greater amelioration." So we find these indefatigable workers making the most careful studies of the heating and ventilation, the improvement of drinking water and many other vital matters of health. The inspector points out the deficiency in the heating and ventilation of ships of the navy compared with that of the best trans-Atlantic liners, and in regard to the distillation of drinking water he recommends that this important matter be under the supervision of the medical department. Reviewing these admirable reports convinces the writer of the correctness of an opinion long entertained, which is that the equipment of the medical department of our own Navy, is much more liberal and complete than that of other countries. Thus the report in question deals with the reaction of Roger and Lévy-Valensi to determine the early presence of tuberculosis, when a microscope is wanting; a condition not apt to occur in our service. This reaction is based on the presence of albumen in tuberculous sputum, while it is claimed to be always absent in simple chronic bronchitis. "Without doubt this reaction is found in the oedema of the lungs following nephritis and cardiac diseases, but the differentiation of the latter diseases from tuberculosis is always simple." It is believed that this matter of sani-

Digitized by Google

tary inspection of ships of war is not given the care which its great importance demands. In the French service this is a special duty, in our own service a sanitary report is annually submitted by the medical officer of the ship, and while this is important it has not the value of a painstaking report made by an officer selected for this important work. The inspection made by the Fleet Surgeon in conjunction with the Commander-in-Chief, and his staff is usually perfunctory and applies more particularly to battle conditions. In this connection a regulation prevailing in the Pacific Squadron prior to the Spanish War is worthy of mention and imitation. The Commander-in-Chief directed the Fleet Surgeon by order to make his general inspection of ships in company, at such time as would permit of its thorough fulfilment, due regard being paid to the ship's routine of which the Commanding Officer of the ship was the judge. While the medical department of right should be represented on board of inspection the most satisfactory and complete results will be obtained when this important duty is done by the Fleet Surgeon in coöperation with the senior medical officer of the ship to whose attention the painstaking work of the French naval medical service is confidently commended.

JOHN C. WISE.

Bulletin de L'Academie de Médicine,

November 28, 1911.

10 Mental Disturbances Following Operation. L. Pique and Le Dentu.
11 Elimination of Chlorides in Acute Dysentery. L. E. Bertrand.

December 5, 1911.

12 *Results of Antityphoid Vaccination in Morocco with Wright's Vaccin and Polyvalent Vaccins. M. H. Vincent.

12. **Results of Antityphoid Vaccination with Wright's Vaccin and Polyvalent Vaccins**—The author gives the results of antityphoid vaccination in French soldiers in Morocco with Wright's vaccin and a polyvalent vaccin prepared by mixing several strain of typhoid bacilli isolated in Morocco with paratyphoid bacilli A and B, and an autolysate of the polyvalent vaccin. As regards the severity of the reaction following the first vaccination he gives the following data:

Digitized by Google

	No reaction.	Slight reaction.	Medium reaction.
Wright vaccin	82.5 per 100	13. per 100	4.5 per 100
Vaccin, polyvalent	81.48 per 100	14.81 per 100	3.7 per 100
Vaccin, polyvalent, autolysate	94.29 per 100	5.71 per 100	0 per 100

The Wright vaccin was used in 129 soldiers and the polyvalent vaccin in 154 soldiers. In certain camps in Morocco Vincent states that typhoid is very prevalent and gives the following comparative results in 2,632 men, of whom 283 were vaccinated:

Cases of typhoid among unvaccinated	171	or 64.97	per 1000
Cases of typhoid among vaccinated	1	or 7.75	per 1000
Deaths from typhoid among unvaccinated	22	or 8.35	per 1000
Deaths from typhoid among vaccinated	0	or 0	per 1000

Vincent concludes that these results prove that a certain method of immunization against typhoid has been evolved and urges its use in the army of France.

December 12, 1911.

13 General Report upon the Prizes Awarded by the Academy During 1911.

December 19, 1911.

14 *Discussion upon Antityphoid Vaccination. M. Chantemesse and Arnold Netter.

14. **Discussion upon Antityphoid Vaccination.**—Chantemesse, in commenting upon the paper of Vincent abstracted in this number, calls attention to the results achieved in the Army of the United States, especially at San Antonio, which he called most extraordinary and almost unbelievable, and made a strong plea that the soldiers of France in Morocco be given the benefit of the same protection from typhoid fever. M. Arnold Netter also reviewed very fully the results obtained in the United States Army and stated: "That our confreres of the United States managed the antityphoid campaign with the same decision and the same energy as that against yellow fever and intermittent fever, and with the same success." Netter gave the following statistics of antityphoid vaccination in the Japanese Army which have just been published in Japan (Sanitaets Statistik der Japanischen Armee, Tokio,

Digitized by Google

1911), and which are of interest as being the first published regarding the use of typhoid vaccin in that army:

	Vaccinated.	Unvaccinated.
Total vaccinated	12,915	20,245
Cases of typhoid	13	293
Deaths from typhoid	1	49
Proportion of typhoid per 1,000	1	14.52
Proportion of deaths per 1,000	7.7	16.6

C. F. CRAIG.

Le Caducée,

December 16, 1911.

15 *Results of Antityphoid Vaccination in Morocco. Prof. V. Vincent.
16 *Hygiene of Troops in Morocco.
17 Status of the Medical Corps in the Colonies.
18 Reorganization of the School of Application (Val de Grace).

15. **Results of Antityphoid Vaccination in Morocco.**—Prof. Vincent read a report of his antityphoid vaccination work in Morocco to the Academy of Medicine, December 5. He began in August, after a particularly arduous campaign, using three types of vaccines, the Wright-Leishman, and two of his own preparation; of these two, one was bacillary and therefore turbid, the other a clear autolysate; both are sterilized by ether. His investigations bear upon a total of 3,065 men (French troops), from which were excluded 150 who had had a previous attack of typhoid, leaving 2,915. Of these, 283 were vaccinated, while 2,632 remained unvaccinated, the conditions of service and exposure of the two groups being practically the same. Of the unvaccinated, on November 1, 116 per thousand had contracted typhoid fever and 8.35 per thousand had died. Of the vaccinated, one had a very mild case and none died. In presenting these very satisfactory results, Prof. Vincent invited attention to the decided superiority of his "polyvalent" vaccines over the Wright-Leishman preparation, but this assumed superiority still remains to be confirmed.

The editor of the *Caducée* who has consistently antagonized antityphoid vaccination is still struggling against the current of the logic of events and devotes a column to specious objections against Prof. Vincent's methods. It is difficult to imagine such lack of respect for simple statistics.

Digitized by Google

16. **Hygiene of troops in Morocco.**—From the criticisms in the French press it seems that much of the hardships, privations and sickness suffered by the troops in Morocco could have been prevented. Transportation was inadequate and supplies quite scant. Of sanitary material, there was hardly anything at the time when most needed. According to an official report: "The troops embarked were not organized units with their proper material, but bunches of men and bunches of mixed material, hurriedly loaded so as to fill up the transports as rapidly as possible. It was thought that in this way much time would be saved, but, on the contrary, much was lost. On arrival, the disorder was indescribable; officers searching for their men and men searching for material. Then it was discovered there were no teams and no vehicles, etc." The result was that when the troops were at last ready to advance, the situation at Fez was so critical that forced marches became necessary under a blazing sun and over burning sands. After the relief of Fez there was a general reaction, bordering on collapse; dysentery, malaria and typhoid fever broke out; in a few days 50 per cent of the combatants were non-effective. At Meknes, where the mortality was great, the field hospital is thus described:

"It is the house of despair; everything is lacking; wounded, fever patients, venereal cases, all mixed together; it is a general medley, with the same diet for all; the few attendants are overwhelmed, etc." Means of transportation for the sick and wounded were absent. They were jolted over rough trails in open native carts. Medical officers are highly praised for their strenuous endeavors to make up for this sad want of preparation by great zeal and heroic efforts.

V. HAVARD.

GERMANY.

Deutsche Militärärztliche Zeitschrift,

December 5, 1911.

19 *Disinfection of the Skin by Tincture of Iodine and its Application in War. F. Brüning.

20 The Specific Diagnosis of Tuberculosis and its Significance for the Medical Officer. B. Möllers.

Digitized by Google

21 Observations of a Japanese Division Surgeon during the Russo-Japanese War. Eijiro Haga.

19. **Disinfection of the Skin by Tincture of Iodine and its Application in War.**—Brüning reviews the whole subject. He says that while Grossich had predecessors, he first in 1908 brought iodine disinfection of the skin into common use. Grossich insists that there shall be no preliminary washing with soap because soap by its action on the skin interferes with the penetration of the iodine. This simple method of disinfection was received with scepticism at first but it has proved reliable in thousands of cases. Grossich's technique is as follows: "In ordinary cases the patient is bathed and shaved on the previous day; in emergency cases the patient is shaved dry and a large area is painted with 10-12% tincture of iodine. Then the anaesthetic is given and just before the beginning of the operation a narrower area is repainted. A preliminary washing with benzine has no advantage. The time between the paintings may be shortened to 5 minutes or even given up. It has been claimed that the alcohol is the real disinfectant, but iodine in watery solution is also effective and the author has shown by experiments with the common organisms on the skin that alcohol is much inferior to iodine. Brüning believes that tincture of iodine disinfection should be used in the field but only under direction of a medical officer and not by the sanitary troops. Crude spirits serve as a vehicle as well as rectified spirits."

H. J. NICHOLS.

GREAT BRITAIN.

Journal of the Royal Army Medical Corps,

December, 1911.

22 A Critical Review of Kala Azar and Tropical Sore. Lieut. Col. Sir William B. Leishman, F. R. S., R. A. M. C.

23 A Comparison Between Syphilis Relapses Under Mercurial and Salvarsan Treatment, Respectively. Major L. W. Harrison, R. A. M. C.

24 A Personal Experience of Life in a Sanatorium, by a Patient.

25 The Instruction and Training of Medical Officers in the Austro-Hungarian Army by Means of War Games. Col. W. G. Macpherson, C. M. G.

Digitized by Google

26 Address by the President. Major E. B. Waggett, R. A. M. C. (T. F.).

27 *The Pointed Bullet. Major E. M. Pilcher, D. S. O., R. A. M. C.

27. **The Pointed Bullet.**—The author says that many of the great Powers have comparatively recently adapted a light pointed bullet in place of the more or less blunt-nosed one at present in use.

It has been frequently observed that at very long ranges the degree of bone injury is unexpectedly extreme, and the accepted explanations have been, first that the bullet moving in the tangent to the curve of the trajectory, which tangent approaches the perpendicular at long ranges, must necessarily make a lateral impact, and secondly that although the movement of rotation declines more slowly than that of projection, yet at ranges exceeding 1,000 yards the gyroscopic steadiness due to rotation is gradually lost, and wobbling takes place about the line of the trajectory, causing lateral impact in certain positions of the wobble.

There is reason to think that the mere relation of length to cross section area may have a great effect in producing a tendency to unsteadiness. The Japanese bullet was .256-in. calibre and 1.28-in. in length. This bullet, which is evidently quite up to the average in length, but considerably below all the others in calibre, is reported from the Russo-Japanese campaign to have made at 800 to 1,000 paces larger perforations than at shorter ranges owing to the unsteadiness of the bullet, and at these distances clothing, etc., was often carried into the wound. Lateral impact seems the only explanation of these effects.

There is a physical peculiarity of the pointed bullet which must be noted. The effect of shaving off the tip and shoulder to a fine point is to throw the centre of gravity very far back, so that a greater length of the bullet lies in front of than behind the centre of gravity. We may expect the pointed bullet, then, to develop unsteadiness immediately upon impact, thus developing to a high degree the principle of wounding effect due to increased area on impact.

Major Pilcher conducted a series of experiments on animals recently killed, using the sharp pointed bullet, and drew the following conclusions:

Digitized by Google

(1) Wounds of entry do not as a rule exceed the calibre of the bullet in size.

(2) The simple flesh wound type of injury is uncommon. Wounds of soft parts usually exceed considerably the diameter of the bullet in size, and the laceration of the viscera is more severe than with the ogival bullet.

(3) Explosive exits are common at ranges up to 500 yards at least, and are seen in wounds of soft parts only as well as in those of bone.

(4) Comminution of both compact and cancellous bone is rather more severe, especially on the exit side of the wound.

(5) At all ranges the bullet has a marked tendency to turn on its short axis on meeting with any considerable resistance.

The author quotes the conclusions arrived at by another experimenter: "The chief characteristics of the sharp pointed bullet as compared with the ogival are, the much increased initial velocity as well as the unusual tendency at all ranges to continued turning, as soon as the slightly turned point meets greater resistance on one side."

The author concludes then that it would seem that in the pointed bullet we have a projectile which causes wounds of a definitely increased severity, when compared with the ogival-tipped small bore bullet. But when we go farther back to the days of large bore bullets, he questions if the contrast is by any means so striking.

ALBERT G. LOVE.

Digitized by Google

REVIEWS

REPORT OF THE HEALTH OF THE BRITISH ARMY FOR THE YEAR 1910.

On the Health of the European Troops Serving in India During 1910.

Enteric Fever. Paratyphoid fever has hitherto been included under this head, but during 1910 an attempt was made to differentiate the two types. No case has, however, been diagnosed as paratyphoid unless the infecting micro-organism has been isolated from the case. This extreme test has probably led to an under statement of the facts as to how much paratyphoid infection really prevails in India among the European troops. During the year 1910 thirty-nine cases were definitely known to be, and diagnosed as paratyphoid fever. Of these, thirty-six were infections by the B paratyphosus "A," and three by the paratyphosus "B."

The following table shows the occurrence of typhoid fever among European troops in India for the last five years. As paratyphoid infections were not reported separately until 1910, the thirty-nine cases occurring were counted with the typhoid as in the year before

Year.	Ratio per Thousand. Admissions.	Deaths.	Case Mortality. Per cent.
1906	15.6	3.19	20.5
1907	13.1	2.77	21.1
1908	14.6	2.74	18.8
1909	8.9	1.58	17.7
1910	4.1	.62	15.2

It is remarked that the really remarkable diminution of enteric infection during 1910 is difficult to explain by any one special condition. The weight of evidence points to the dominant influence of the present day system of segregation of the infected with the careful examination of all convalescents, and their retention in

Digitized by Google

the convalescent depots until found to be absolutely free from infection. There are two enteric fever convalescent depots. Nine carriers were detected at the two depots and in addition four men were found who were excreting the enteric bacillus only for a short time after arrival. Their influence for good has been supplemented by the wonderful increase in the number of men inoculated against enteric fever. There can also be no doubt as to the development of a much higher standard of attention to sanitary details in barracks and lines. This has been much facilitated by an increased appreciation on the part of the men as to the value of and attention to the principles of elementary hygiene.

The following table shows the incidence and mortality of enteric fever among officers, women and children:

Ratio per Thousand of Strength.					
Officers.		Women.		Children.	
Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
9.3	1.27	6.5	1.45	3.3	0.15

It is regrettable to note that the admission and death rates for enteric fever among officers was just twice as large per 1,000 for 1910 as that which existed for non-commissioned officers and men. The reason for this is probably a lower percentage of inoculated persons among officers, and a greater exposure to infection on their part by shooting expeditions, and other absences from their garrison. Only a small proportion of the women were inoculated and a still smaller proportion of children.

On Dec. 31, 1910, out of 71,623 men serving in India on that day, 58,481 or 81.7 per cent had been inoculated. Of these 10,141 had been inoculated once, 39,971 had been inoculated twice, and 8,369 more than twice. Of the men not inoculated 1,508 had had enteric fever, and 11,634 had never had enteric fever or had ever been inoculated.

Of the 335 cases of enteric fever which occurred in 1910, 187 were inoculated men and 148 had not been inoculated. Twenty-two deaths occurred among the inoculated and 24 among those not inoculated. The ratio per 1,000 of strength of admissions for enteric fever among the inoculated was 3.19, and the corresponding ratio of deaths was 0.37. Among those not inoculated the admission ratio per 1,000 of strength was 12.72, and that for

Digitized by Google

deaths was 2.06. As regards case mortality, the percentage figures were 11.23 for the inoculated and 16.89 for the uninoculated. Of the 187 men inoculated, who suffered from enterica, 25% had been inoculated one year, 46% two years; 17% three years, 9% four years, and 3% more than four years.

Paratyphoid Fever. There can be no question as to the prevalence of this disease in India, in fact, there is reason to think that it prevails much more than many suppose, and certainly more than statistical returns show. Thirty-nine cases were reported in 1910. There is reason to believe that 100 cases would more accurately represent the real facts. Many of these cases are returned under the head of enteric fever and a certain number are returned in the group "pyrexia of uncertain origin."

There is an official ruling that cases are not allowed to be diagnosed and returned as paratyphoid fever unless the specific microorganism has been isolated from the case. This certainly is not possible in all cases, and it follows that a certain number of cases of paratyphoid infections are returned as either cases of enteric fever or cases of pyrexia of uncertain origin. A matter of practical importance is how far, in absence of any isolation of the incriminating bacillus from these cases, reliance can be placed upon the clinical symptoms for diagnosis. If taken in conjunction with the epidemiological facts. Indian experience is favorable to the view that the possibility of error is small. It is true that the clinical symptoms are not capable of sharp demarcation from those which are so characteristic of enteric fever, but the occurrence of an irregular pyrexia of comparatively short duration, that is, from 10 to 16 days, coupled with a sudden onset of which the outstanding features are severe frontal headache and occasional lumbar pain, are, if taken in conjunction with other symptoms, suggestive of a mild typhoid attack, is strong presumptive evidence in favor of the view that we are dealing with a case of paratyphoid infection. The low case mortality of these cases are characteristic. One of the most serious hindrances to accurate diagnosis and a right appraisement of the extent to which paratyphoid infection prevails has been the tendency on the part of medical officers to attach excessive importance to the serum reaction. The serum reaction is invariably raised for the B typhosus in cases of infection with the B typhosus "A," especially

Digitized by Google

during the first week of the fever, and it may be quite as high for the former bacillus, as shown during an ordinary attack of typhoid fever.

The evidence is remarkably strong that in paratyphoid infection the dominant agent in its dissemination is man himself; this being so, renders it all the more necessary to secure the early detection and segregation of cases. During the year there were two well defined small outbreaks of paratyphoid fever. One was a group of eight cases. In this outbreak it was found that the infection was clearly traceable to a man employed as a cook orderly. The other outbreak was traced to a man employed in the regimental dairy. He had recently recovered from a mild attack of fever.

ALBERT G. LOVE.

COLLECTED PAPERS BY THE STAFF OF ST. MARY'S HOSPITAL. (Mayo Clinic), Rochester, Minnesota, 1910. Octavo of 633 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, $5.50 net.

The appearance of the second volume of Collected Papers of the Staff of St. Mary's Hospital (Mayo Clinic) will be welcomed by surgeons everywhere not only for its own worth but also because it presages the publication of these papers once a year in book form, or whenever it seems desirable. This is done not only to preserve the material permanently, but to place it in a convenient form for ready reference.

The contents of the present volume are grouped under the following headings: Alimentary canal, hernia, genito-urinary organs, ductless glands, head, neck, and extremities, technic, and general papers. The first section comprises more than half of all the articles in the book.

Charles H. Mayo is the author of seven articles and William J. Mayo of twelve. Among those of the latter is a commencement address delivered at the Rush Medical College Commencement, June 15, 1910. This will prove specially interesting to members of this Association as it deals largely with conservation of human vigor and life. It is almost needless to say that the strictly technical articles by the Mayos as well as their confreres

Digitized by Google

are of a high order of excellence. The book is well printed and the numerous cuts are good.

INTERNATIONAL CLINICS. Volume III. Twenty-first series, 1911. A Quarterly of illustrated clinical lectures and especially prepared original articles on treatment, medicine surgery, neurology, pediatrics, obstetrics, gynaecology, orthopaedics, pathology, dermatology opthalmology, otology, rhinology, laryngology, hygiene and other topics of interest to students and practitioners by leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A. M., M. D., Philadelphia, with the collaboration of Wm. Osler, M. D., John H. Musser, M. D., A. McPhedran, M. D., Frank Billings, M. D., Chas. H. Mayo, M. D., Thos. H. Rotch, M. D., John G. Clark, M. D., James J. Walsh, M. D., J. W. Ballantyne, M. D., John Harold, M. D., and Richard Kretz, M. D. Octavo of 304 pages. Price, $2.00. Philadelphia and London: J. B. Lippincott Company, 1911.

In this volume of this standard quarterly the following articles should prove of particular interest to our readers: Some uses for some old drugs, by Edward Willard Watson, M. D.; the modern treatment of arteriosclerosis, by Harlow Brooks, M. D.; the operative treatment of recent fractures of long bones, by Thos. W. Huntington, M. D.; and the management of the pre-operative stage of acute mastoiditis by general practitioners, by Samuel J. Kopetzky, M. D.

MANUAL OF OPERATIVE SURGERY. By John Fairbairn Binnie, A. M., C. M. (Aberdeen). Surgeon to the General Hospital, Kansas City, Mo.; Fellow of the American Surgical Association; Member De La Societe Internationale De Chirurgie. Fifth Edition, revised and enlarged. With 1,365 illustrations, a number of which are printed in colors. Octavo of 1,153 pages. Philadelphia: P. Blakiston's Son & Co., 1911. Price, $7.00,

This work has proved a very popular one. Issued originally in one small volume which did not include operations on the bones and joints, etc., it was followed by a second volume comprising these subjects. Now all have been brought together in one volume.

The book is strictly an operative surgery and within its covers will be found an account of most operations. It is well and clearly written and the cuts are numerous and illustrate the text in a satisfactory manner.

The book should be found in the library of every surgeon.

Digitized by Google

EDITORIAL

THE object of this Association, as stated in the Constitution, is to increase the efficiency of the medical departments of the various public services. Our higher object, though it is hardly necessary to announce this in any association composed of officers is, of course, to promote in every possible way the efficiency of our military establishments on land and on sea.

Without question our last annual meeting was characterized by more acute interest, better papers and freer discussion than any which has preceded it. Moreover, as the years go by we are attaining a clearer conception of our duties. Early in our history as an Association the surgical side was held of paramount importance, later, on account of the awful lessons of the Spanish-American War, sanitation assumed a commanding place. Now, we realize that these subjects are after all but part of the whole and that our endeavor should be to become all around medical officers with a competent knowledge of professional subjects to be sure, but with in addition a knowledge of organization and administration which in the stress of war will enable us to run the complicated medical department machine in campaign smoothly and certainly so that we may contribute our part to the efficiency of our arms and thus fulfill our patriotic duty, and may at the same time afford to all sick and wounded the care and attention which they have a right to expect.

Within our Association, itself, it may then be taken for granted that affairs are in a satisfactory condition. It would seem, however, that our object can hardly be accomplished if we stop here. Nor was this the sentiment of the Association as expressed at the last annual meeting. On that occasion a resolution was adopted which contemplates delivery of papers on military subjects of special medical application by members of the Association at various county and state medical society meetings. Before the next annual meeting a start will have been made and it is not too much

Digitized by Google

to hope that every year will see papers by medical officers on their specialty delivered to state and county societies. In this way, the medical profession of the country must eventually become much better informed on the duties and needs of their fellows who represent them in the services. Moreover, many of these gentlemen are prospective medical officers for war. While the information they will gain through the lectures in question cannot, of course, fit them for this it will at least be a step in this direction.

Probably this is as far as the Association can go, and there are, of course, other agencies which officially take cognizance of the needs of the medical departments in our public services. These being public services, however, it is only just that the general public should be thoroughly informed in reference to them. This can hardly be said to be the case at present. The public, and this can be heard all over the country on almost any occasion when the medical service of the army is discussed, are still of the opinion that the army medical department in the Spanish-American War was almost criminally negligent and as a great deal of publicity has been given to the success of the Japanese medical department in the Russo-Japanese War are in a hostile frame of mind and only too ready to criticise. The work of our own army medical department at the recent maneuver camps in the southwest, splendid as it was, has not counteracted the failures of the Spanish-American War in the public mind largely because the first mentioned did not affect the many homes which suffered as the result of our last war. The lesson which should be learned from comparing the camps of mobilization during the war and the recent maneuver camps is so absolutely convincing that it certainly should have the widest possible publicity. At the former, trained medical officers were so few in numbers that good sanitation was impossible of accomplishment. At the latter with trained medical officers in sufficient numbers success was assured. There is every reason to believe that similar results will always follow.

It it not improper to occasionally pause in one's labors and take stock of what has been accomplished in the past. Elsewhere the editor has pointed out that this magazine has prospered in the scientific aspect in that foreign and older medico-military publications have lately abstracted many original contributions from

Digitized by Google

its pages. This is indeed gratifying. The small size of our regular army has deterred foreign military students from paying us as much attention as rival powers and our medical service was no exception.

The scientific advances of the American medical services, however, had to win by sheer value. No first-class medico-military publication can now be taken in hand but what some reference will be found to the labor of some member of the Association of Military Surgeons of the United States.

Since 1882 "W. Roth's Annual Report on Labors and Progress in the Domain of Military Medicine" has been acknowledged the official mirror reflecting on past achievements throughout the world. An idea of the magnitude of the literature cited can be obtained by the division of the subject matters into seven main departments, each of which is again divided into several sections. Organization and Personnel, Service of Health, Service of the Sick, Field Service, Naval Service, Colonial Service and Medico-Military Statistics form the main departments.

It will, of course, be impossible to enumerate all the articles by our members, that have come in for special notice in that annual review, but a few have been selected to show that we have progressed.

Under "Organization" the labors of Havard, Smart, Muren, Nancrede, Foster and Jones have been noticed. Publications of an official character (general orders) from the Surgeon General's Office have been brought to the attention of medical officers. Dr. Blech of the American Red Cross Service has published several articles on the American Medical Services in German and has reported in the same language our last two annual meetings.

Ebert, Munson, Minor, Stark and Crampton come in for recognition because of contributions on the training of sanitary personnel.

The lectures of Bissell and Smart on camp sanitation have been appreciated.

In the professional department the following papers have been noticed: Wright (Early diagnosis of tuberculosis), Richards (Mental diseases), Blech (Varicocele), McGlannan (Liver trauma).

Digitized by Google

The labors of Maus, Brown and Morse on Venereal Prophylaxis have been noted.

As regards field service we note Wilcox's suggestion to simplify the equipment of mobile units, Roberts' service with the cavalry, McKinney on the ambulance company, Reasoner on a litter carrier. In this connection is to be mentioned the friendly reception accorded Paul F. Straub's book on the medical service in campaign.

Naval subjects, which form a special department, show strong American representation: Curtis, Beyer, Stokes, Richardson (R. R.), Fiske, Carpenter, Holcomb, Spear,, Kennedy, Riggs, Pugh, Wheeler and Sutton, Wise and Pickrell. The greatest majority of citations are of contributions to this journal, the rest from the U. S. Naval Medical Bulletin.

Under "Colonial Medicine" earnest attention is given the labors of Hartsock, Craig, Ashford, Winter and Rossiter.

In conclusion we must mention that a paper read by Colonel Ross of the Mexican Service, on International Signs for diagnosis tags, at our meeting at Washington has attracted considerable attention in the foreign press.

The Russian Naval monthly, "Morskoj Vrach," devotes a special article on James Duncan Gatewood's textbook on Naval Hygiene and concludes an unusually lengthy review with the words: "Among the large number of widely disseminated foreign textbooks on naval hygiene, Gatewood's book must be placed in the very first place, as it gives the naval surgeon a mass of priceless practical suggestions in connection with the elucidation of the most important theoretic teachings of naval hygiene."

PRO PATRIA.

A VERY important and valuable article by E. L. Walker on the subject of "The Amoebae of the Manila Water Supply, and those found in Healthy Individuals and in Amoebic Dysentery" has just been published (*The Philippine Journal of Science,* October, 1911), and is of special interest because the author has examined a large amount of material at the Bureau of Science in Manila, where the question of the existence of pathogenic and

Digitized by Google

non-pathogenic species of amoebae and their identity with free living amoebae has long been a mooted question.

The author, who is the protozoologist of the Bureau of Science, after reviewing the work which has been done upon cultural and free living amoebae gives the results of his own work upon the amoebae found in the water supply of Manila, in healthy individuals and in those suffering from diseases other than dysentery, and in patients suffering from amoebic dysentery. He concludes that the amoebae which can be cultivated from the water and from the faeces are all free living species, belonging to the genus *Amoeba,* while those occurring as parasites in man belong to the genus *Entamoeba* and are different both in morphology and life cycle from the amoebae which he cultivated and which have been cultivated by other observers. He confirms the presence of both *Entamoeba coli,* and *Entamoeba histolytica* in the Philippines, *Entamoeba coli* being found in healthy individuals, while *Entamoeba histolytica* is found only in patients suffering from dysentery or having a history of having suffered from that disease. He regards *Entamoeba tetragena* as identical with *Entamoeba histolytica.* His chief conclusions are as follows:

"1. The amoeboid organisms found in the Manila water supply belong to the genus *Amoeba* Ehrenberg.

"2. The amoeboid organisms cultivable from the intestinal tract of man, both from healthy persons and from cases of amoebic dysentery, also belong to the genus *Amoeba* Ehrenberg.

"3. The cultivable species of the genus *Amoeba* are not parasitic in the intestinal tract of man; when obtained in cultures from the intestines, they probably are derived from cysts of amoebae which have been ingested with water or food and have passed unchanged through the intestinal tract.

"4. The amoeboid organisms parasitic in the intestine of man belong to a distinct genus, *Entamoeba* Casagrandi and Barbagallo.

"5. The entamoebae are strict or obligatory parasites and are incapable of multiplication outside of the body of their host. They cannot be cultivated on Musgrave and Clegg's medium.

"6. One non-pathogenic species of the genus *Entamoeba, Entamoeba coli Schaudinn,* parasitic in the intestine of man, which includes *Entamoeba nipponica* Koidzumi, and which develops cysts containing 8 nuclei, is recognized.

Digitized by Google

"7. One presumably pathogenic species of the genus *Entamoeba, Entamoeba histolytica* Schaudinn, which includes *Entamoeba tetragena* Viereck, and which develops cysts containing 4 nuclei, is recognized.

"8. A differential diagnosis of an infection with *Entamoeba coli* from an infection with *Entamoeba histolytica* can be made with the microscope.

"9. An infection with either *Entamoeba coli* or *Entamoeba histolytica* must always come directly or indirectly from another infected person."

From these conclusions it will be seen that Walker has confirmed Schaudinn's work, first confirmed in 1905 by Craig, and that he finds that the amoebae which have been cultivated have nothing to do with the etiology of dysentery, being free-living amoebae belonging to the genus *Amoeba* Ehrenberg. He also states that he finds the *histolytica* type of pathogenic amoeba more frequently in Manila then the *tetragena* type, contrary to Whitmore, who found the latter species more frequently. Walker's conclusion that *histolytica* and *tetragena* are identical appears to be premature, as both species have been studied in pure infections by Hartmann, Viereck, Werner, and Craig, and the evidence is sufficient to prove that they are distinct. The double infections with these species which occur in endemic areas and degenerated forms of amoebae might easily lead to the conclusion that transitional forms of the two types exist, but there is no question of their distinction in cases in which a pure infection with either is present. The article is a most interesting one and will, we believe, put an end to the controversy regarding the non-identity of cultural with parasitic amoebae and the existence of *Entamoeba coli* and *Entamoeba histolytica.*

C. F. Craig.

Digitized by Google

NEWS OF THE SERVICES

Surgeon Rupert Blue has been appointed by the President Surgeon General of the Public Health and Marine-Hospital Service. Dr. Blue was born in South Carolina in 1868. He was graduated from the University of Maryland in 1892 and became an interne in the Marine-Hospital Service during the same year. In the following year he was commissioned assistant surgeon and in 1897 promoted to the grade of Passed Assistant Surgeon, and in 1909 to the grade of Surgeon. In 1903-4 Dr. Blue was in charge of the federal operations for the eradication of plague in San Francisco. In 1905 he took part in the suppression of yellow fever in New Orleans, and in 1907 was detailed as director of sanitation at the Jamestown Exposition. In 1907 plague reappeared in San Francisco and Dr. Blue was again placed in charge of the Service work in California. Dr. Blue recently spent some time in Europe studying preventive medicine as practiced there and in 1910 graduated from the London School of Tropical Medicine. In May, 1910, he was detailed to represent the Public Health Service at the International Congress on Medicine and Hygiene at Buenos Ayres, and at this time took advantage of the opportunity to study possible routes by which plague and yellow fever might be imported into the United States from South America. Dr. Blue's last detail before his appointment as Surgeon General was at Honolulu, where he had been sent to act in an advisory capacity to the Hawaiian Board of Health and other departments of the territorial government in the carrying out of a program inaugurafed to make the sanitary conditions such that the possibility of the introduction of yellow fever or plague into the territory after the opening of the Panama Canal will be reduced to a minimum and its spread, if introduced, impossible.

The promotion of Surgeon Rupert Blue to the office of Surgeon General of the Public Health and Marine Hospital Service rendered necessary the assumption of his work in Honolulu by Passed Assistant Surgeon G. W. McCoy. Dr. McCoy thus becomes advisor to the Civic Sanitation Committee of Hawaii, which is especially interested in carrying out sanitary measures to prevent the propagation of disease bearing insects and rodents. The work of this committee is being carried on in conjunction with the Territorial Board of Health, and substantial improvements in sanitation are expected to follow.

Acting Assistant Surgeon Harry T. Hollman, of the Public Health and

Digitized by Google

Marine-Hospital Service, working at the Leprosy Investigation Station at Honolulu, Hawaii, has succeeded in growing in symbiosis with amoebae and cholera vibrios an acid-fast bacillus found in the lesions of rats suffering with rat leprosy. The method of isolating and growing the organism was similar to that used by Musgrave and Clegg. The organism was subsequently grown in pure culture.

Surgeon J. O. Cobb, of the Public Health and Marine-Hospital Service, has been detailed to represent his Service at the meeting of the Association of American Medical Colleges to be held at Chicago, Illinois, February 28, 1912.

Assistant Surgeon Louis Swartz, of the Public Health and Marine-Hospital Service, has been relieved from duty at the Marine Hospital in San Francisco, California, and ordered to proceed to Manila, Philippine Islands, and report to the Chief Quarantine Officer for duty. Upon his arrival in the Philippines, Passed Assistant Surgeon Harvey G. Ebert will be relieved from duty in the Islands and will return to the United States by way of San Francisco.

A contract has been awarded for the reconstruction of the Marine Hospital at Stapleton, Staten Island, New York. The work is to be completed August 1, 1913, and the reconstructed hospital will be fireproof and modern in every respect. It is expected that the work will be commenced on or before March 1, 1912. A building containing two suites of officers' quarters has just been completed at Stapleton, and will be ready for occupation within a few days.

President Taft, in responding to an inquiry of the *New York Times*, made of a number of famous personages of what they considered the five most notable achievements of the year just past gave as the second of his answers "The demonstration of the complete success of the prophylactic in typhoid fever, as shown by the fact that in the mobilization of 15,000 troops in Texas for three months there was only one case of typhoid."

A most valuable and interesting article appears in the November-December number of the *Infantry Journal*. This is entitled "The Sanitary Service in War" and was written by Captain Oliver Edwards, Fifth Infantry, as a paper at the Army Staff College. The subject has rarely been treated so clearly and comprehensively and every member of this association is advised to procure a copy of the article in question.

Articles by members appearing elsewhere have been noted during the month as follows: The Purification of Water by Anhydrous Chlorine, by Major C. R. Darnall, Medical Corps, U. S. Army; The Wassermann Reaction in Syphilis, Leprosy, and Yaws, by Major Horace D. Bloombergh, Medical Corps, U. S. Army; Further Observations on the Complement Fixation Test in Lues, by Captain Charles F. Craig, Medical Corps, U. S. Army; Origin and Prevalence of Typhoid Fever in Fort Smith, Ark.,

Digitized by Google

and Measures Necessary for its Control, by Passed Assistant Surgeon W. H. Frost, Public Health and Marine-Hospital Service; Insanity and the Immigration Law, by Passed Assistant Surgeon Thomas W. Salmon, Public Health and Marine-Hospital Service; The Prevalence of Intestinal Parasites Among Immigrants, by Passed Assistant Surgeon Herbert M. Manning, Public Health and Marine-Hospital Service; and The Transmission of Typhoid Fever and Its Prevention by Vaccination, by Doctor Alexander Lambert, First Lieutenant, Medical Reserve Corps, U. S. Army.

Lieut. Colonel Albert H. Briggs, Medical Corps, National Guard of New York, a former President of the Association and one of its best known members, was retired from active service on January 1, 1912. Colonel Briggs joined the National Guard as an assistant surgeon in 1879. In 1881 he was promoted captain and in 1883 gained the rank of major. He remained in that grade until 1909 when he was detached from his old regiment and was sent for duty on the 4th Brigade Staff. Colonel Briggs also saw active service during the Spanish-American War.

As a testimony of their appreciation the officers of the 4th Brigade Staff presented Lieut. Colonel Briggs with a handsome clock on the occasion of his retirement. It is understood that Colonel Briggs, although retired from active service, will retain his active interest in the Association and it is sincerely hoped that we may be honored by his presence at our annual meetings for many years to come.

First Lieutenant F. H. Sparrenberger, Medical Reserve Corps, U. S A., has been made Presidente of Davao, Mindanao, Philippine Islands. It is understood that he is the only medical officer so detailed and it is stated that Davao has the reputation of being the cleanest town in Mindanao.

Colonel J. C. Minor, Chief Medical Officer of the Arkansas National Guard, announces the advent of a brochure on prevention of disease. The title is *"The Plan o' the House o' Man, Sir."* "The text, diagrams and hopes are those of the author, James Cabell Minor, M. D. The pictures are made by Robert Minor, Jr."

The advance sheets present humorously in colored pictures interesting methods for preventing more than one hundred disorders flesh is unwilling heir to. The idea of preventing appendicitis is not only new but decidedly unique and so simple that many of "my surgeon friends, 'their occupation gone,' have quit speaking to me." He continues, "The usefulness of the book is among the laity, the soldier, the factory hand, the farmer; of course the idea will always appeal to the doctor, as common sense, but who of society wants to be burdened with prevention of disease when doctors are so nice and plentiful."

The book-gist is that the tripod of life is not the brains, the heart, and the lungs as our forefathers taught, but "Nutrition, Elimination and Sleep," there being proper and improper ways of keeping these "legs o' life" evenly balanced.

Digitized by Google

Major Frank T. Woodbury, Medical Corps, who was tried by a general court-martial at Fort Jay, New York harbor, was acquitted of the charge of neglecting a patient under his charge at Fort Assinniboine, Montana.

1st Lieutenant John S. Saurman, Medical Reserve Corps, who has passed the preliminary examination for appointment in the Medical Corps of the Army, has been called into active service and assigned to duty at Fort Monroe, Virginia.

Preliminary examination for appointment in the Medical Corps of the Army was held throughout the United States the week beginning January 15th. Thirty-two applicants were invited to appear before the boards to take this examination. The result of this examination is not yet known.

Major Henry S. Greenleaf, Medical Corps, is on a two months' leave of absence, which he is spending in Washington, D. C.

The friends of Lieutenant Colonel William D. Crosby, Medical Corps, will be pleased to learn that his health is greatly improved and he has not found it necessary to avail himself of the leave of absence for two months, which was granted him.

1st Lieutenant Eben C. Hill, Medical Corps, was before an Army Retiring Board in Washington the early part of January. The recommendation made by the board is not known.

1st Lieutenant Owen C. Fisk, Medical Corps, who has been a patient at the Walter Reed General Hospital, has been ordered to report to the President of an Army Retiring Board in Washington, D. C.

Captain Hiram A. Phillips, Medical Corps, who was operated on in the Walter Reed General Hospital for appendicitis, has been discharged from the hospital and has resumed his status of leave of absence.

Major Arthur W. Morse, Medical Corps, Captain John R. Barber, Medical Corps, Captain Edward G. Huber, Medical Corps, 1st Lieut. Alexander D. Parce, Medical Corps, and 1st Lieut. James A. Wilson, Medical Corps, arrived in San Francisco from the Philippines on the transport "Sherman" on January 8, 1912. Captain Barber and Lieutenant Parce were assigned to the Letterman General Hospital, Presidio of San Francisco, California; Major Morse was assigned to duty at Fort Morgan, Alabama; Captain Huber was assigned to duty at the Army and Navy General Hospital, Hot Springs, Arkansas, and Lieut. James A. Wilson was assigned to duty at Fort Slocum, New York Harbor.

The transport "Sheridan" sailed for the Philippines on January 5th with the following medical officers on board:

1st Lieutenant Thomas J. Flynn, Medical Corps;
1st Lieutenant Edward L. Napier, Medical Corps;
1st Lieutenant Thomas H. Johnson, Medical Corps;
1st Lieutenant Edward M. Welles, Jr., Medical Corps;
1st Lieutenant Albion McD. Coffey, Medical Reserve Corps;
1st Lieutenant Ralph W. Newton, Medical Reserve Corps;
1st Lieutenant Herbert W. Yemans, Medical Reserve Corps;
1st Lieutenant John M. Hewitt, Medical Reserve Corps;
1st Lieutenant Frederick H. Mills, Medical Reserve Corps;

Digitized by Google

1st Lieutenant Charles L. Baker, Medical Reserve Corps.
Lieutenant Baker is under orders for Fort Ruger, H. T.

During the month Colonel Henry P. Birmingham, Medical Corps; Major Powell C. Fauntleroy, Medical Corps and Major F. F. Russell, Medical Corps, were ordered to proceed to Fort McPherson, Georgia, to conduct a careful physical examination of Mr. Charles W. Morse, the former New York banker, who is now serving a sentence in the Georgia penitentiary. As the result of this examination Mr. Morse was ordered removed to the Army and Navy General Hospital, Hot Springs, Arkansas, for treatment.

Captain James I. Mabee, Medical Corps, on duty at Fort Huachuca, Ariz., accompanied troops of the 12th Cavalry from Fort Huachuca to Fort Meade, South Dakota. Captain Mabee returned to Fort Huachuca on December 24, 1911.

Major Arthur W. Morse, Medical Corps, has been granted a fifteen days' leave of absence en route to join his new station, Fort Morgan, Ala.

1st Lieutenant Sidney L. Chappell, Medical Reserve Corps, who has passed the preliminary examination for appointment in the Medical Corps of the Army, has been called into active service and assigned to duty at Fort Totten, New York.

Major William H. Brooks, Medical Corps, Fort McDowell, California, has been ordered to report to the President of an Army Retiring Board in San Francisco, California.

Captain Nelson Gapen, Medical Corps, who has been on leave of absence, returned to his station, Hot Springs, Arkansas, on January 3, 1912.

Major Francis A. Winter, Medical Corps, was in New York during the week beginning January 8th, consulting with the Medical Supply Officer in that City, on business connected with the semi-annual purchase of medical supplies.

Captain Harold W. Jones, Medical Corps, who was on duty at the Walter Reed General Hospital for more than two years, has reported for duty at Jackson Barracks, Louisiana.

The resignation of Captain Henry B. McIntyre, Medical Corps, was accepted by the President, to take effect January 10, 1912.

Major Clyde S. Ford, Medical Corps, who has been on sick leave on account of a serious surgical operation performed in the early part of November, has been ordered to Hot Springs, Arkansas, for observation and treatment.

Major Charles Y. Brownlee, Medical Corps, who has been on duty with the Sixth Cavalry on the Mexican border for several months, has returned with that regiment to his station, Fort Des Moines, Iowa.

Major Benjamin J. Edger, Jr., Medical Corps and Captain Omar W. Pinkston, Medical Corps, who have been on duty on the Mexican border with the Fourth Cavalry since the Spring of 1911, have returned to their station, Fort Meade, South Dakota.

Major Clarence J. Manly, Medical Corps, who is a patient in the Walter Reed General Hospital, is rapidly recovering from a surgical operation

Digitized by Google

The Military Surgeon

Vol. XXX. MARCH, 1912 No. 3

ORIGINAL ARTICLES.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

THE VENEREAL PROBLEM IN THE ARMY AND NAVY.

By Lieut. Col. J. R. KEAN, Medical Corps, U. S. Army.

COMPLEX NATURE OF THE PROBLEM.

EACH individual who has reached the age of puberty has a circle of thoughts, emotions and experiences, which exercises a vast influence over his intellectual and moral development, and the happiness of his life. This charmed circle, which the Germans call the Sexual life, is jealously guarded from outside intrusion, and though a chosen individual of the opposite sex is at times admitted within it, even this most intimate companion only arrives at a knowledge of a portion of the field. A very strict taboo governs, especially in the Anglo-Saxon race, matters relating to the sexual life as regards both speech and action. This taboo is supported in part by the conventions of society and in part by moral laws. Social conventions and the moral code do not always coincide in this matter as, for example, the so-called double code for the two sexes as regards illicit sexual relations. The secrecy which surrounds the sexual life and the resentment which any invasion of it, either by other individuals or by the agents of the law, arouses, add very greatly to the difficulty of obtaining legislation for the

Digitized by Google

control of the sexual diseases, and even more to the difficulty of enforcing the sanitary and police rules required by such legislation.

The intervention of governmental authority to check the spread of any epidemic or endemic disease has always a social side, because it must interfere more or less with personal liberties, and the power of Health Departments in this direction must of necessity be very large. But in no other class of diseases does the social aspect loom so large nor is the inner and secret life of the citizen so much invaded as in those transmitted by sexual contact. The moral aspects of much legislation are, moreover, most important and are such as to actively interest a class of the community strong in intelligence and influence and made aggressive by a profound conviction of superior rectitude of purpose. It is generally recognized by all who have studied the question that the prostitute is the principal purveyor of venereal diseases, and this is especially true of the spread of them among the young unmarried men who fill the ranks of armies. It seems logical, therefore, to conclude that the initial and fundamental step in the control of these diseases, both in the military services and in civil life, is the bringing of diseased public women under some form of sanitary supervision and control. But the question is unfortunately far from being one of preventive medicine only, like the prevention of tuberculosis or diphtheria. The moralist, the sociologist, and the penologist must be called in council and their demands, however difficult, conflicting, or visionary, given a hearing and met, compromised, or answered before the greatest and most essential step in venereal prophylaxis can be taken. So far in our rather crude and unscientific systems of municipal government, no effective attempt has been made to solve the problem and prostitution has been treated on the antiquated theory of the old English law that it is a nuisance to be handled by the police as a question of public order. The result has been that the police, the minor courts and municipal politics have been corrupted, while the fundamental question of public health has been lost sight of and neglected, until the venereal plague threatens the foundations of the social edifice and begins to compel attention. Such is the situation today in the United States, and before beginning the discussion of remedial measures it is desirable to investigate the prevalence of these

Digitized by Google

diseases in the military establishment and in civil life from which the Army and Navy are recruited, and from which also they receive the venereal infections.

PREVALENCE IN CIVIL COMMUNITIES AND MILITARY ESTABLISHMENTS.

In spite of the amazing promiscuity of sexual indulgence among ancient peoples and the existence of prostitution as an institution under religious sanction, remarkably little reference is found in classic literature with regard to venereal diseases. Gonorrhoea was a notifiable disease among the Jews and treated by segregation, but syphilis is not clearly described in ancient literature. The question of its introduction from America is still a matter of dispute, and Dr. Ivan Bloch, after ten years' exhaustive study of the question, has given his great authority to the support of the theory of its American origin. However this may be, venereal diseases do not appear to have reached the luxuriant pandemic prevalence which characterizes them today until the end of the fifteenth century. Their intimate relation to the institution of prostitution was recognized and this fact, together with the moral uplift of the Reformation, led to various, but always futile efforts in many countries to suppress that occupation. The sanitary question of prevention of venereal disease is inseparable from the great social problem of prostitution, which is as old as civilization itself, and which, being promoted by the economic conditions and competitions of today, seems further from a solution than ever before.

There are no accurate statistics of the prevalence of social diseases in civil life. They are not reportable diseases, except recently in the Scandinavian peninsula, and if they were made so by law, even being reported by number instead of by name, it would take a long campaign of education to bring public sentiment to the point where they would be generally reported. The number of sufferers from these diseases can, therefore, only be estimated from the statistics of hospitals and clinics and from statements of physicians and other data of this sort. About one-third of the patients seeking free medical treatment at the free dispensaries of hospitals do so for venereal diseases and yet the hospital and dispensary accommodations for these patients in the United States are notoriously inadequate. Morrow estimated the num-

Digitized by Google

ber of syphilitics in the United States at 2,000,000, and if the proportion between syphilis and gonorrhoea found by the statistics of the Committee of Seven in 1901 in New York City of nearly one to ten still obtains for the country at large, the number of sufferers from venereal diseases would reach the enormous number of nearly twenty millions. The proportion of men infected with syphilis in Paris is said to be 13 to 16 per cent (1). The Prussian Government in 1900 made an attempt with the coöperation of the medical corporations to ascertain the amount of venereal disease prevalent in the Kingdom. Circular questions were addressed to all members of the medical profession requesting them to report the number of patients suffering from these disorders in their practice on the 1st of April. Answers were sent in by 63 per cent and the aggregate number of patients was 40,902. From this datum it was calculated that the number of persons *attacked in the course of a year* was at the least 500,000 in Prussia alone (*Hygienische Rundschu,* April, 1902). The number is stated by another and later authority at 773,000 cases attacked annually.

Edmund Founier by an examination of 11,000 cases of syphilis found that the maximum incidence is for men the 23rd year, and for women the 20th year. But in prostitutes the occurrence is much earlier and is practically universal by the third year of practice of their trade. Infection with gonorrhoea is repeated, and although they may acquire a relative immunity to it, they are rarely cured. Of course, these diseases when present are not always in a contagious stage. The professional prostitute is broken down within ten years from the time she begins to ply her trade and a large proportion of them die sooner,—in from 5 to 10 years. There were over 30,000 prostitutes in New York City in 1897. Nearly one-half of them were or had been infected with syphilis. Valuable information as to the prevalence of these diseases in civil life is given in Chapter VII of the Report of the Vice Commission, Chicago, 1911, and in the report of a Committee of the American Public Health Association read at the 38th annual meeting at Milwaukee, September, 1910, *Journal of the American Public Health Association,* pp. 162-208, from which sources many of the data just stated are taken.

The disastrous results of these diseases in the production of sterility, abortion, miscarriages, and heavy infantile mortality, puerperal infections, grave diseases of the nervous and circulatory

Digitized by Google

systems, disabling arthritis, blindness and other sequelae disastrous to the individual and to the race are too well known to physicians to require rehearsal.

PREVALENCE OF VENEREAL DISEASES IN THE ARMY AND NAVY.

The medical history of the Revolution and of the first half century of our military establishment is meagre, and statistical data are especially lacking. We find, however, in the military records of that day not infrequent allusions to venereal diseases. The following resolution of Congress in 1778, the year of Valley Forge, shows that the patriots of that day were not free from the ravages of the modern "pestilence that walketh in darkness:"

Resolved, That the sum of ten dollars shall be paid by every officer and the sum of four dollars by every soldier, who shall enter or be sent into any hospital to be cured of the venereal disease; which sum shall be deducted out of their pay, and an account thereof shall be transmitted by the physician or surgeon who shall have attended them, to the regimental paymaster, for that purpose; the money so arising to be paid to the director general or his order, to be appropriated to the purchasing of blankets and shirts for the use of the sick soldiers in the hospital.

At the period just preceding the Mexican War the total venereal rates were not greatly different from those which obtained fifty years later for the years before the war with Spain. Thus we find from the reports of the Surgeon General the following:

Year 1843	Rate 60	Year 1893	Rate 70
Year 1844	Rate 82	Year 1894	Rate 80
Year 1845	Rate 67	Year 1895	Rate 74

Hoff (2) states that for eighteen years preceding the Civil War the rate per annum for all venereal diseases was 87.9 per 1,000 and for the ten years subsequent 87.6 for white troops. During the Civil War of the 334,321 drafted men examined in 1863-4 and recorded in the medical records of the Provost Marshal General's Office, 8 per 1,000 were rejected on account of constitutional syphilis, the primary sore not being held as a cause for rejection. The following is quoted by him from the Medical and Surgical History of the War of the Rebellion (Part III, Med. Vol. p. 891):

Venereal diseases were associated with intemperance in the conditions

Digitized by Google

which favored their causation. Hence they were more frequent at the beginning and the close of the war than during its progress, and among troops stationed in the vicinity of cities than among those in active service. Elevations of the lines of prevalence during the continuance of the war correspond with the accession of fresh levies or the return of furloughed veterans. Among the white troops, 73,282 cases of syphilis* were reported and 109,397 cases of gonorrhoea and gonorrhoeal orchitis, giving a total of 82 cases of venereal disease annually per thousand men, a rate for syphilis of 33 per 1,000 per annum, probably 16.5 of this rate being chancroid.

In general terms it may be stated that the venereal records of the American Army for the latter half of the Nineteenth Century were far better than those of the British Army at home stations for the same period and are comparable with those of the continental European Armies. But while these have steadily improved, we have swiftly retrograded until at present and for more than a decade the American Army has maintained a shameful preeminence in this respect over the army at home of any of the great powers. This increased prevalence in both military services in recent years has excited the attention and concern of the medical services. The Surgeon General of the Army says in his last report:

The slight diminution in the occurrence of venereal diseases last year gave hope that the campaign of education on this subject which has been begun through the medical officers was beginning to bear fruit, but 1909 unfortunately shows an increase not only over the preceding year, but over any other year of which there is record, except 1905. The total number of admissions was 14,640, representing 12,605 cases, with an admission rate of 196.99, as compared with 194.13 for the preceding year, and a constant noneffective rate of 13.07 as compared with 11.65. Disheartening as is this record, it is, if one may accept the opinions of high medical authorities, exceeded by the prevalence of these diseases in civil life, and it will be very difficult to make any substantial improvement in the record of the army in this respect until the state and municipal authorities are aroused to the necessity of taking serious sanitary measures to restrict their ravages.

That this high rate is not entirely due to the exposures and temptations of tropical service is shown by the following table which shows that although the Philippine rate is excessive, that of the troops in the United States is still abnormally and shamefully high:

*Including chancroid. The distinction was not made between chancroid and syphilis in our army until about 1880, and in the British until 1887

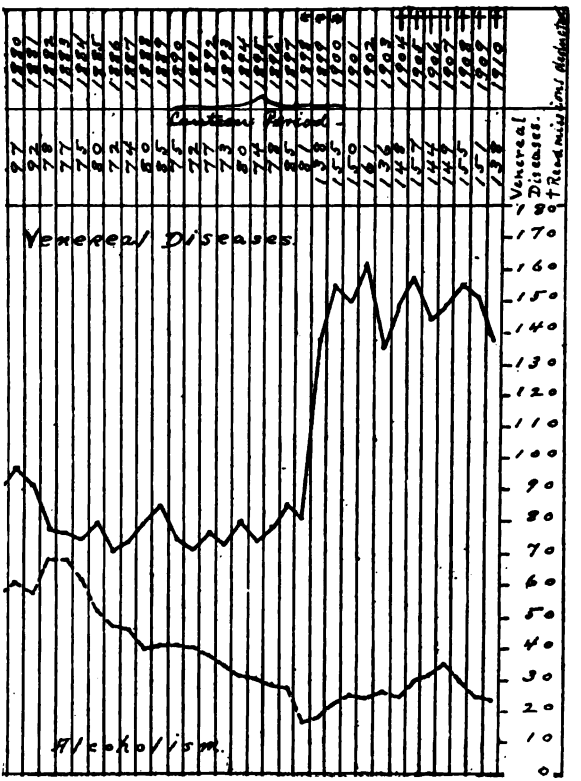
Digitized by Google

TABLE No. 1.

Admissions—Total Venereal Ratio per 1,000 of Mean Strength, Regular Troops, U. S. Army Cases.

Year.	United States.	Year.	United States.	Philippines.	Total Army.	Year.	United States.	Philippines.	Total Army.
1880	97	*1889	85			1901	150	154	157
1881	92	*1890	75			1902	161	156	161
1882	78	*1891	72			1903	136	175	151
1883	77	*1892	77			1904	148	297	188
1884	75	*1893	73			1905	157	306	200
1885	80	*1894	80			1906	144	310	190
1886	72	*1895	74			1907	149	311	197
1887	74	*1896	78			1908	155	290	194
1888	80	*1897	85			1909	151	302	197
		*1898	81			1910	138	276	175
		*1899	138	156	146				
		*1900	155	139	159				

*Establishment of Canteen Feb. 1, 1889.
Feb. 2, 1901—Act of Congress prohibiting sale of alcoholic drinks in Canteen.
NOTE.—In this table readmissions have been deducted so that the ratios represent cases and not total admissions.



Digitized by Google

Nor is it due to the stoppage of the sale of beer at the canteen which did not occur until Feb. 1, 1901, although the ill-advised action has doubtless served to maintain the rates at the high mark then reached. The one occurrence which profoundly affected the composition and discipline of the Regular Army in 1899 was the granting of discharges to all soldiers who had served through the Spanish War. These were accepted by the great majority of the trained professional soldiers of the Army and their places were taken by recruits. It is a well known fact that recruits are more subject to venereal diseases than old soldiers, as is shown by the high rates always prevalent at recruit depots. By 1902 these soldiers should have become disciplined and the rates for the United States should have returned approximately to the figure of 1897. The abolition of the canteen, however, by making the soldiers' club less attractive, drove him outside the limits of the post, where, instead of mildly alcoholic drinks amid decent and wholesome associations, he found distilled liquors of bad quality and evil companions of both sexes—the gambler and the prostitute. It is probable that yet another factor may have augmented to some extent the venereal admissions of the last decade, viz: the readmissions of men of regiments returning from tropical service who had acquired their infections there. For it should be borne in mind that these rates are admissions to sick report, including all cases treated either in hospital or in quarters, and cases returning on account of relapses or new symptoms. The figures thus represent an excess for syphilis about 15%, for gonorrhoea about 12%, and for chancroid about 7% over what would be the rates for primary admissions, such as are used in the table for the Navy given below:

The greatly increased venereal rates for the Philippines are not due to social or other conditions peculiar to those islands, but are in accordance with a general law which applies equally to other nations having tropical colonial possessions. Munson (3) has shown that troops quartered among an alien but not necessarily hostile population almost invariably suffer more as regards these diseases than those at home. He says: "In the Austrian Army a large increase in such diseases followed the occupation of Bosnia and Herzogovinia in 1878; the French troops in Algiers are more affected with venereal disease than those

Digitized by Google

in France and the same is true to a marked degree in the case of the British troops in India and those of the Dutch in Java." The same is true of the Gurkhas when sent away from their home stations for service in Bengal. He also noted that venereal diseases are more severe in tropical climates and also when sexual relations are assumed between individuals of different races, the aliens suffering more in this respect than the resident population. While this increased incidence in tropical colonies as compared with home stations affects the white troops, the native troops stationed side by side with them suffer far less. The British native troops in India and the Dutch Asiatic troops in the East Indies suffer much less than the European garrisons in these possessions. The same is true of our Filipino Scouts as is seen by the following figures for the respective races serving side by side in the Philippine Islands for the last quinquennium:

Year	White	Colored	Philipino
1905	306	(None in P. I.)	60
1906	309	322	63.2
1907	277	494	63.5
1908	267	388	56
1909	290	418	49

The explanation of this surprising difference is that the native troops are mostly married, a reason which probably applies also to the native troops of other nations. As these Asiatics are certainly not more continent and have not higher moral standards than the white American soldiers it illustrates well the enormous disadvantage in this respect of the enforced celibacy of the American soldier and to what a small extent moral and prudential considerations can make headway in opposition to a fundamental natural instinct. As with infrequent and spasmodic exceptions there has been no effort on the part of municipal authorities in the towns near garrisons in the United States to limit the spread of venereal infections, and as the military authorities have only very recently become interested in the matter and the War Department has not yet adopted and put into operation any definite and systematic plan for their prevention, the above figures represent the practically untrammelled operation of the system of free trade in disease. To study the results of the different methods which have been evolved for the regulation of prostitution

Digitized by Google

and the prevention of venereal diseases we must look to the armies of other nations. Before doing so, however, we will observe the incidence of these diseases in the U. S. Navy.

Naval conditions differ in many respects from those in armies. While aboard ship sailors are entirely protected from sexual temptations and exposures and their opportunities to go ashore are usually less than those of the soldier to visit the garrison town. On the other hand they visit the ports of many lands and incur the increased risks to which we have seen that aliens are subjected amid a foreign population. Fiske (4) states that one man out of every seven in the Navy develops a venereal infection each year;—assuming an average of four years' service to each individual we judge that over 50% of the personnel have a venereal disease at some time during this relatively brief period of their lives.

Surgeon General Rixey stated in his annual report for 1909 that during the year 1907, if applied solely to the force afloat, this class of disease "would have operated to render entirely inactive for over a month three battleships with a complement of 1,000 officers and men each."

In 1908 there were 6,514 total admissions for venereal affections, of which 4,681 represented original infections; these cases furnished 106,526 sick days which represented a loss of service and treatment expense to the government of over $200,000." In his report for 1910, the Surgeon General of the Navy after speaking of the promising prospect for good of the measures of venereal prophylaxis instituted at the Asiatic Station in 1908 says, with reference to the venereal statistics of the Navy:

> For statistical purposes it might be deemed fortunate that a realization of the importance of admitting all cases was brought to the attention of every medical officer on blank forms before the prophylaxis became more universally adopted, for we are now shown for the first time, without resorting to ratios based upon the number of cases of syphilis or gonorrhoeal rheumatism, directly from the returns that the primary admission rate (160.40) begins to approximate that of the Army for 1908 which was 174.84. At any rate the prominence which preventive measures have given the subject seems to have relation to a fuller record of cases, so that the apparent primary admission rate as shown by returns jumped from 91.81 in 1908 to 160.40 in 1909. The unreliability of the figures for 1908 are well indicated by the one case of gonorrhoea on a ship of the size of the Cleveland, while 51 cases were shown for 1909. Similar divergence is shown by the reports from the Helena, Wilmington, Villalobos and torpedo flotilla. A fairly

Digitized by Google

consistent estimate might now be ventured that the true incidence of primary venereal infections is not far from 200 per 1,000.

With the proviso just stated to guide us, the following table shows the occurrence of venereal diseases in the Navy for the three past decades:

TABLE No. 2.

Table showing movement of Venereal Disease in United States Navy, 1880 to 1909.

(Compiled by Surgeon C. N. Fiske, U. S. N., for American Public Health Assn.)

YEAR	Mean strength Navy and Marine Corps (Medical returns).	Admission rate per 1000 (Syphilis).	Admissions for Gonorrhoea.	Admissions for Chancroid.	Aggregate primary infections.	Admission rate per 1000 for primary venereal infections.
1880	9,003	50.09	212	72	735	81.64
1881	9,546	42.21	213	108	724	75.85
1882	9,371	52.28	216	113	819	87.40
1883	9,197	36.96	252	93	685	74.48
1884	9,959	33.13	298	171	799	80.23
1885	9,191	30.35	370	181	830	90.31
1886	9,188	30.35	389	201	869	94.58
1887	9,618	25.36	396	167	807	83.90
1888	9,955	29.63	348	228	872	87.59
1889	11,219	27.63	316	118	744	66.32
1890	11,768	21.75	286	152	694	58.97
1891	11,501	17.21	284	100	582	50.60
1892	11,775	14.77	329	111	614	52.14
1893	12,109	14.12	304	60	535	44.18
1894	12,520	21.72	501	208	981	78.36
1895	12,671	18.86	330	152	721	58.48
1896	13,768	17.35	303	131	673	47.43
1897	15,229	17.72	323	136	729	47.87
1898	23,038	16.66	503	190	1,076	46.71
1899	20,113	20.18	517	226	1,149	57.13
1900	22,977	20.23	525	214	1,204	52.40
1901	26,101	20.91	617	217	1,380	52.87
1902	30,249	20.03	771	284	1,661	54.91
1903	36,536	22.30	1,032	396	2,244	61.42
1904	39,450	22.30	1,512	542	2,934	74.04
1905	39,620	24.75	2,085	538	3,604	91.38
1906	41,690	27.51	2,640	733	4,520	108.42
1907	44,083	19.98	2,274	554	3,709	84.14
1908	50,984	19.63	3,015	665	4,681	91.81
1909	55,550	26.57	5,861	1,573	8,910	160.40

The following are the admission rates given in the reports last obtainable for the more important navies of the world:

	Year	Mean strength	Rate per 1000
German	1907–8	49,955	66.
French	1905	49,935	75.
Italian	1906	27,338	83.*
Japanese	1908	43,857	167.
British	1909	112,700	120.
American	1909	57,172	160.

*This is the figure given in the official reports for Malattie veneree. Malattie sifiliche is given separatly with a rate of 24 per 1,000. It is not clear from the context whether the latter should be added to the former or is included in it.

Digitized by Google

TABLE No. 3—*Venereal Diseases—British Army.*

INDIA.		HOME STATIONS.	
Year.	Ratio per 1000	Year.	Ratio per 1000
1860	335	1860	369
1861	369	1861	354
1862	315	1862	330
1863	280	1863	307
1864	255	1864[1]	260
1865[2]	220	1865	247
1866	220	1866[3]	229
1867	180	1867	260
1868	205	1868[4]	252
1869	185	1869	219
1870	190	1870	196
1871	195	1871	196
1872	179	1872	203
1873	165	1873	175
1874	190	1874	147
1875	205	1875	139
1876	185	1876	147
1877	205	1877	153
1878	270	1878	176
1879	230	1879	180
1880	245	1880	246
1881	260	1881	245
1882	265	1882	246
1883	270	1883	260
1884	290	1884	271
1885	340	1885	275
1886	387	1886[5]	261
1887	360	1887	253
1888[6]	378	1888	225
1889	480	1889	212
1890	500	1890	212
1891	400	1891	197
1892	405	1892	201
1893	465	1893	195
1894	510	1894	182
1895	520	1895	174
1896	510	1896	158
1897[7]	508	1897	140
1898	371	1898	133
1899	314	1899	122
1900	298	1900	93
1901	276	1901	105
1902	281	1902	123
1903	250	1903	125
1904	200	1904	108
1905	154	1905	90
1906	117	1906	82
1907	90	1907	72
1908	70	1908	68
1909	68	1909	66

[1]Contagious Diseases Act in operation at 14 home stations from 1864 to 1882.
[2]Contagious Diseases Act introduced into India in 1865.
[3]Acts amended and scope extended at home stations in 1866.
[4]Further extension to 18 stations in 1868.
[5]Contagious Diseases Acts repealed in United Kingdom in 1886.
[6]Operation of Acts in India abolished in 1888.
[7]Excessive increase of venereal diseases in India compelled adoption of new Cantonment Rules in 1897, where they are still in operation.

Digitized by Google

VENEREAL DISEASES IN THE BRITISH ARMY.

These statistics are of the utmost importance for us to study in comparison with our own, alike on account of the close kinship of race, temperament, laws, and customs of the two nations, the similarity of ethical standards, and the susceptibility of both peoples to be moved by sentimental and emotional propaganda, especially when carried on in the name of morality. An examination of the table giving the incidence of these diseases in the U. S. Army since 1860 (Table I), and comparison with Table III, showing the same facts for British home stations (in the United Kingdom) shows that the British rates for the last quarter of a century give continuous, steady improvement so that their latest rates are better than any in our history, whereas the rates for the U. S. Regular Army suddenly advanced in 1899 and for the last dozen years have maintained figures comparable with those of the British Army at home of fifteen years ago. The record of the Army in India is also full of instruction and encouragement, as a demonstration of what can be accomplished under conditions even worse than now obtain in the Philippines by rational, practical measures, adequately supported by the government and strongly enforced by the military authority. The regular and systematic publication of the Army Medical Department Reports for the British Army began in 1859 and served to call serious attention to the prevalence of the venereal plague in the Army and Navy and to the large amount of inefficiency caused thereby.

Home Stations. In 1864 the first Contagious Diseases Act was passed which was intended to limit the spread of these diseases by providing for the detention in hospitals of the public women who were the chief agents in their transmission, as long as these women had active contagious lesions. This Act proved ineffectual and was supplemented by the Acts of 1866 and 1869. These remained in force until May, 1883, when compulsory examinations were prohibited by a resolution of the House of Commons. The Acts were finally repealed in 1886. An active opposition to these Acts arose, based largely upon sentimental grounds. It was claimed by the opponents that the intervention of the state was unwarranted because its effect was to make im-

Digitized by Google

morality safe, which was in opposition to the interest of public morality. It was also claimed that they did not accomplish the result intended of conserving the public health and so they were justified neither by the interests of public good or public morality. If these contentions were true it was obviously unwise to spend public money and excite controversy in an unproductive cause, but if on the contrary salutary results can be shown to have followed their operation, they are clearly justified by the principle "salus publica suprema lex." It is necessary, therefore, to discuss the effects of these Acts somewhat fully in order that it may be decided whether the objections were well taken or whether on the contrary they afford useful precedents for us to follow. It should be remarked, however, that fifty years ago preventive medicine was in its infancy and the obligations of government with regard to it were naturally but little recognized. In the domain of moral and ethical speculation on the other hand it was a period of great ferment and activity and it is not to be hastily assumed that because considerations of theoretical morality outweighed the practical ones of the public good that these decisions would not be reversed if properly presented to the more material and practical public opinion of today.

The Contagious Diseases Acts were never applied to all garrisoned towns but only to certain ones named in the Acts and thus a good means of judging their efficacy is afforded. The following table gives the average admissions per 1,000 for 14 municipal stations in the United Kingdom which were under the operation of the Acts, compared with 14 large stations not subjected to their operation. For comparison, the period before they went into operation is given and the period immediately after their suspension:

BRITISH ARMY—HOME STATIONS.

Year	14 stations under Acts	14 stations not under the Acts	Remarks
1860-63	129.8	120.6	Before the Acts.
*1864-69	87.1	133.9	*First Contagious Disease Act, 1864. Extended 1866 1869.
1870-73	86.0	107.9	
1874-79	37.8	97.4	
1880-82	75.6	175.9	
†1883-84, after repeal of acts	123.9	174	

†In 1883 the House of Commons passed a Resolution condemning compulsory examination.

Digitized by Google

It appears that the influence of the Acts was more strongly marked in secondary syphilis, the most serious form of venereal disease, than in gonorrhoea or primary syphilis.

ADMISSIONS FOR SECONDARY SYPHILIS.

Year.	Remarks.	Rate.
1860-1864	Before the Acts (5 years)	36 per 1,000
1865-1885	During the Acts (21 years)	28 per 1,000
1886-1899	After the Acts (14 years)	34 per 1,000

An examination of Table III shows clearly that there was even before the enactment of the Act a steady decrease in venereal disease in the British Army, and this has been used as the main argument to show that their preventive value was slight by those opposed to the employment of any agencies except moral considerations to oppose this evil.

As will be seen from the table in 1860 the rate was 369, falling to 260 in 1864 and 259 in 1866. There was a moderate rise in 1867. During the next eight years there was a long steady decrease, the rate falling from 292 in 1867 to 139 in 1875. The abolitionists claim that this fall should be regarded as a normal continuation of that previously observed and assert that it is impossible to prove that it was the effect of the Acts. During the last ten years that the Acts were in force the rate rose from 147 in 1876 to 275 in 1885, and this, too, is claimed as an evidence that the Acts were without good effects.

The reasons for this rise are not clear, and it is an evidence of the many unrecognized factors which complicate this question and suggest caution in drawing conclusions from statistics. Immediately after the repeal of the Acts a steady fall in the rates set in which has continued up to date, there being a noticeable drop during the two years, 1900 and 1901, when most of the troops were sent off from home stations to the Boer War.

It is believed that the general improvement must be credited to the advance of modern civilization with the general diffusion of education and the greater appreciation of the importance of personal cleanliness, and of the precautions necessary to avoid venereal infection. The enforcement of any sanitary legislation is, to a high degree, educational. Nor can it be doubted that apart

Digitized by Google

from the large amount of disease and suffering affecting both to the moral delinquents and their innocent families and offspring which were saved by the operation of these Acts, they exercised a wholesome and beneficial influence upon the ignorant and degraded class subjected to their operation. They have demonstrated to those most in need of such instruction the value of prompt medical treatment and the benefits which follow personal cleanliness. It is not unreasonable to believe that far from the diminution of venereal disease since the repeal of the Acts having demonstrated their futility, the constant withdrawal of a considerable proportion of the active disseminators of disease from the practice of their profession until the danger of contagion had been removed, would have made the decrease more and more rapid and have saved much suffering and many lives.

An interesting demonstration of the fact that the diminution of sexual disease was not confined to the Army, but was going on in civil life in the United Kingdom is shown by the decreasing number of candidates for enlistment rejected on this account during these years, as shown by the following table:

Year.	Rejections, ratio per 1000.	Year.	Rejections, ratio per 1000.
1864	16.86	1884	10.57
1865	15.67	1885	9.77
1866	16.56	1886	8.18
1867	16.51	1887	8.08
1868	12.88	1888	7.73
1869	16.40	1889	6.64
1870	15.78	1890	6.29
1871	16.38	1891	4.88
1872	15.67	1892	4.61
1873	16.51	1893	4.87
1874	15.74	1894	5.07
1875	12.63	1895	3.48
1876	15.16	1896	3.67
1877	15.52	1897	3.47
1878	15.16	1898	3.85
1879	13.43	1899	2.61
1880	11.67	1900	2.21
1881	12.56	1901	2.22
1882	16.72	1902	2.49
1883	9.81	1903	2.79

From the Prevalence and Prevention of Venereal Diseases in the Army. By Major T. McCulloch, Royal Army Medical Corps.

PREVALENCE AND PROPHYLAXIS IN INDIA.

As we have already seen, the prevalence of venereal diseases among a European garrison living as aliens among a native popu-

Digitized by Google

lation in the tropics is always large. Notwithstanding, it is difficult to see how anyone with an open mind can study their incidence among the British troops in India as given in table No. 3 without seeing and admitting the efficacy of applying to them the same general sanitary laws which are effective in other contagious diseases. The important facts are as follows:

The provisions of the Contagious Diseases Act were introduced into the Indian Cantonments in 1865. For the seven years prior to that time, during which Army Medical records were collated, the mean incidence of these diseases had been about 310 per 1,000. During the two decades that they were in force the mean of the rates of annual incidence was 218. Lock hospitals in a number of the cantonments were experimentally closed at the beginning of 1885 and in 1888 the House of Commons by resolution abolished lock hospitals. For the three years between these dates the average of rates of incidence was 375. The increase of disease after their complete closure in 1888 resulted in such scandal, and the efficiency of the troops was so compromised, that in October, 1897, the New Cantonment rules were put in force. The average rates of incidence during these nine years of inaction (1889 to 1897, inclusive), was 489. Under these rules diseased women were treated in hospitals or expelled from the cantonments. In other words, the provisions of the cantonment rules were extended to include venereal diseases, which were treated like other contagious diseases. Under the operations of these rules the total venereal rate fell steadily from 508 in 1897 to 90 in 1907, and is, as shown by the table, still falling. The segregation of diseased women was not by any means the only preventive measure put into operation during this period, but it is difficult to believe that the segregation of the sick from the well was not a very important one of them. That this factor existed and was in operation is frequently lost sight of although it is often alluded to in the Army Medical Reports, as will be seen in extracts given below.

In view of the similarity of conditions between the British Military Service and our own, both for the colonial services and the home garrisons, and especially in view of the success which has crowned their efforts, it is of the utmost importance that the campaign of Lord Kitchener against the spread of venereal diseases in India (not the least creditable of his victories) should

Digitized by Google

be clearly set forth, even at the risk of prolixity. The New Cantonment Rules and the Government despatch promulgating them are of the greatest interest, both on account of their importance and the erroneous statements which are frequently made with regard to them. It is also of interest to see the skill with which Lord Hamilton avoided giving cause of offense or ground of attack to the opponents of regulation in England, while at the same time laying down the principle, which is good today and entirely applicable to American communities, that the same sanitary control by the health authorities should be exercised over venereal diseases as over other contagious and infectious diseases. It is precisely this principle which has been recently advocated for adoption in Chicago by the Vice Commission in its report to the Mayor of that city on April 5th, 1911, (page 304).

On April 1st, 1897, the Premier, Lord George Hamilton, presented to the House of Commons a military despatch from himself to the Government of India. After recapitulating the facts and figures proving the terrible increase in venereal disease among the troops in India, he said:

"Your Excellency will, I am confident, concur with Her Majesty's Government, that in any measures which may be adopted there must be nothing which can be represented as an encouragement of vice. There must be no provision of women for the use of soldiers by any authority, civil or military. There must be no registration of prostitutes other than that which is, or should be, enforced for all inhabitants of cantonments, and no granting of licenses to practice prostitution. There must be no compulsory and periodical examination of women. Prostitutes must not be allowed to reside in regimental bazaars or to accompany regiments on the march. Subject to these restrictions Her Majesty's Government consider that Rules 5, 6 and 7 of the Cantonment Rules made in 1895 under Sections 26 and 27 of the Cantonment Act of 1889, should be made applicable not merely to cholera, smallpox, diphtheria or typhoid fever, as specified in the rules, but to all contagious and infectious diseases, *including venereal diseases*. They consider it imperatively necessary that this disease should not be excepted from the measures adopted to prevent the spread of other contagious diseases. It may be argued that the examination of women, which may, but need not

Digitized by Google

necessarily be held under these rules, is in effect compulsory. Her Majesty's Government do not share this view. But if there be any compulsion, it is precisely of the same kind as that which has been accepted as necessary and enforced without any objection in the case of diphtheria or typhoid fever. There will be no obligation on women to attend hospital, but as an alternative to doing so, they may be required to leave the cantonment, and rightly so as an almost certain cause of disease to others. Her Majesty's Government also approve of the suggestion made by the Army Sanitary Committee as to the employment of female hospital assistants under the direction of the Medical Officer in the examination and treatment of women."

The following are the clauses from the Cantonment Rules referred to:

5. If the medical officer for the time being in charge of any cantonment hospital is informed upon testimony which he believes to be creditable that any person living in the cantonment is suffering from cholera, smallpox, diphtheria, or typhoid fever, he may, by notice, require such person to attend at the hospital at a time to be mentioned in such notice, and if upon the attendance of such person in pursuance of such notice or otherwise, he shall ascertain that such person is in fact suffering from any of the above-mentioned disorders, he may require such person to remain in the hospital until he shall have been pronounced free from such disorder, or may give such other direction in the matter as may seem to him most expedient for the purpose of preventing the spread of such disorder.

6. If any person upon whom any such notice as is mentioned in the last preceding rule shall have been served shall refuse or neglect to attend at the hospital in pursuance of such notice, he shall be deemed to be suffering from such disorder as aforesaid and to have refused to go to the hospital.

7. If the medical officer at the time in charge of any such hospital certifies in writing to the commanding officer of the cantonment that any person living in the cantonment is, or is deemed to be, suffering from any of the disorders mentioned in Rule 5, and that such person has refused, or is deemed to have refused, to go to the hospital, or that he having gone to the hospital has left it while still under the influence of such disorder, and that the continuance of such person in the cantonment is likely to be attended with danger to the health of the other inhabitants of the cantonment, or some of them, the cantonment magistrate may, upon application of such medical officer order such person to remove from the cantonment within 24 hours and prohibit such person from remaining in or re-entering it without the written permission of such medical officer.

Digitized by Google

The Contagious Diseases Acts were applied to the City of Calcutta in 1869. They were suspended in part of the city in November, 1881, and in the entire city in March, 1883. The following table of total venereal rates for the garrison shows the effects of this legislation:

Year.	Primary Syphilis.	Rate per 1000 all venereal diseases.
1868	10.0	25.1
1869—Regulation.	9.0 — put in force.	25.1
1870	6.0	14.4
1871	2.7	8.1
1872	5.7	13.9
1873	1.4	7.4
1874	1.4	9.4
1875	1.3	10.3
1876	2.3	12.6
1877	4.3	10.7
1878	4.0	11.7
1879	2.7	9.3
1880	1.7	12.8
1881	3.1	8.7
1882	3.7	14.5
1883—Regulation.	10.9 — abolished.	28.0
1884	30.2	58.1
1885	15.1	31.6

The Army Medical Department report for 1898 (p. 214) gives the following statement of the measures to which were due the decided improvement which in that year was first manifested in the terrible venereal record of the Army in India, the rate having fallen to 371 from 508 in the previous year:

1. The New Cantonment Rules.
2. The continuance of treatment in cases of syphilis after discharge from hospital so as to prevent recurrence of symptoms.
3. Putting bazaars out of bounds.
4. Moral influences—lectures and talks to the men—amusements, etc.

In 1900 when there had been a still further fall of the rate to 298 the Report discusses it as follows:

"For the diminution of venereal prevalence there are many influences at work, each probably contributing in greater or lesser degree to the same end. The cantonment hospitals have done good work during the year, women often presenting themselves voluntarily for treatment. Sometimes the men were reluctant to point out the women who gave them the disease, a reluctance which is

Digitized by Google

easy enough to understand if the man contracted the disease in a place which was out of bounds at the time; sometimes they were unable to point them out but, as a rule, information, more or less reliable, is readily enough obtained. The provision of means of ablution for the men when they return at night is stated to have had beneficial results. Placing the bazaars out of bounds on account of the prevalence of plague, cholera, smallpox and venereal itself, is reported to have been followed by a diminution of the venereal admissions in some instances, but in one or two others no benefit was observed. Strict surveillance of all roads, parade grounds and other open spaces in the vicinity of barracks after nightfall is carried out in some places. The moral effect of warnings and short addresses and the good influence of the encouragement of athletics and evening entertainments in keeping the men away from temptation is alluded to in several reports. The curtailment of certain privileges to all men who contract venereal disease, and causing every man when discharged from hospital to make up the number of guards, etc., that he has missed while incapacitated for duty through venereal disease is mentioned as having a deterrent effect. The absence of young soldiers fresh to the country, consequent on the ordinary reliefs not having been carried out during the year, is considered a likely cause of decrease.

"The practice of keeping the men under regular observation and of continuing treatment in cases of syphilis after the men have been discharged from hospital has practically become universal, and reports favorable to the system have been received from all parts of India."

A note of tragedy is injected into the dry official report by the remark "The increase of venereal disease at a number of stations in the Bombay Command—an increase that affected native as well as European troops and also the civil population at these stations—was caused by the amount of disease spread by famine-stricken women who flocked to the neighborhood of cantonments and earned for themselves a bare subsistence by prostitution."

The report for 1902 says:

"The men have been addressed from time to time by medical and regimental officers, and special ablution rooms with a supply of disinfectants have been established by the regimental authori-

Digitized by Google

ties. Sports, competitions, and games have been encouraged, and every inducement offered in the shape of comfort in canteen, coffee, and recreation rooms, to induce men to spend their spare time in barracks, and it is certain that in regiments where the combatant officers exercise close personal supervision over the men, and associate themselves with them in their games, sports, and other amusements, their influence and example are powerful factors in preventing the men from indulging in vice. The greatest care has also been observed in preventing men from being discharged from hospital before all primary sores were firmly and completely healed, thus reducing the danger of spreading infection to a minimum. All cases after discharge from hospital have been kept under observation and treatment for some time to guard against relapse. The powers conferred by the cantonment code have been rigidly enforced with reference to those known to be suffering from contagious diseases, but many cases are still contracted from women residing outside of cantonment limits. The disease still appears to be most frequently contracted from casuals who loiter about the roads notwithstanding the neighborhood of barracks being patrolled by the police. In some stations there are no restrictions with regard to prostitution and the condition of prostitutes. In others, when it became known that a certain house or locality contained diseased women, it was put out of bounds and the men warned."

Finally, in the Report for 1909, when the rate had fallen to only 13% of what it had been fifteen years before, the Director General sums up the factors of success as follows:

"As noted in former reports, the steady annual decrease in these diseases is due chiefly to

"1. The personal influence of commanding officers.

"2. The spread of temperance.

"3. The variety of games and amusements which fill up spare time.

"4. The more thorough treatment of disease, by which relapses are checked.

"5. Finally, the deterrent influence of the loss of service pay which those who contract these complaints have to suffer.'"

There is certainly not one of these which cannot and should not be at once put into operation in our Army. Nothing is said here

Digitized by Google

of the influence of the Cantonment Rules, though in the Report for 1906 and those preceding it, the favorable effect of them is specifically referred to.

Mr. Henry J. Wilson, a member of Parliament with access to the official records, in a pamphlet "The History of a Sanitary Failure," demonstrates by many quotations from military reports and especially from the memoranda of the Army Sanitary Commission for the years 1874, 1875 and 1876-1885, that the lock hospitals in Indian cantonments in the earlier days had failed to very greatly reduce the amount of disease. It can indeed be seen from Table III that the system left much to be desired in the way of success. That the system was not without value, however, is demonstrated by the enormous increase in disease that followed the abandonment of the system in 1888. When the new cantonment Act of 1897 was put into operation other measures of a moral, educational and diverting nature were, as we have seen, introduced. It is to these alone that Mr. Wilson and his associates ascribe the great improvement of late years. His conclusion is:

"It is to be hoped that those who suggested—in the House of Commons, in the newspapers, and elsewhere—that the Regulation system should be re-established in India, were ignorant of its utter failure in the past, and unconscious of its inherent immorality.

"In the examination of the documents from which the quotations have been taken, there has not been found a trace of evidence that any one man of the thousands—mostly young—annually sent to India, has ever had a single word of advice, official or unofficial, urging him to lead a moral life. Efforts have no doubt been made here and there by individuals, chaplains or officers, but no trace of evidence has been found that they have ever had a word of thanks or that any stimulus or encouragement has been given generally which might lead others to make similar efforts.

"Is it not high time to do something in this direction, and to abandon all idea of repeating futile efforts to make vice safe and even attractive?"

In appendix II, after giving an outline history of regulation in India, he says:

"On the 14th of July, 1897, a General Order was issued by

Digitized by Google

Sir George White, then Commander-in-Chief in India, urging the importance, amongst other things, of using every means 'to draw the men from the bazaars and other neighborhoods frequented by loose women,' and 'that greater efforts should be made to induce our soldiers to practice self-control.'

"This was followed on the 28th of April, 1898, by a Memorandum by Lord Wolseley, Commander-in-Chief, which carried the matter a step further, and for the first time in the history of the country placed an official censure on sexual immorality. It included the important declaration, in reference to promotion, that 'no man, however efficient in other respects, should be considered fit to exercise authority over his comrades if he is of notoriously vicious and intemperate habits.'

"Thus, alongside of the re-enactment of Regulations in India, there was an entirely new departure, viz., the official discouragement of immorality. There has since been a remarkable diminution in the statistics of disease which it would be unreasonable to attribute to the revival of a system which had notoriously failed in the past; and the reduction may more reasonably be claimed for the new factor which has come into operation, viz., the improved attitude of the authorities toward morality."

In this connection it is of interest to recall the grave and fitting words in which the Secretary of War, the Honorable Elihu Root, in 1902, pointed out to the Army and especially that part of it in the Philippines the moral and physical advantages of clean living (Circular No. 60, A. G. O., March 18, 1902). The venereal rates for that year showed a considerable increase both at home and in the Philippines to which troops these admonitions were especially directed. From this it must be concluded that moral suasion and the admonitions of higher authority have a less edifying effect upon the American soldiers than upon the British service, or else that the moral effect of military orders on this subject have been over-rated by Mr. Wilson.

CONTINENTAL NATIONS.

The venereal diseases of the Continental Armies are in remarkable contrast with those of the two great Anglo-Saxon nations, being in all of them much lower. Different reasons are ascribed

Digitized by Google

for this difference which is admittedly not due to a higher standard of sexual morality on the part of the former. It is undoubtedly true that British and American soldiers have more leisure and are far better paid than those whose service is because of civic obligation and not for pay. It has been asserted also that the milder cases do not all appear in the reports, a point which will be touched upon later. But it is difficult to avoid the belief that the chief reason is to be found in the fact that in continental Europe the State has made serious efforts to restrain the ravages of these diseases by police regulations and sanitary inspections with segregation of those found diseased and medical treatment until they are cured. While these methods, which will be discussed later, are imperfectly executed and fail to reach a large number of clandestine prostitutes, they undoubtedly accomplish much good.

The Prussian Army has the best record of all the great armies, both for general health and for low venereal rates. The latter have been steadily diminishing for a number of years. For the decade between 1875 and 1885 the highest total rate for these diseases was 41 per 1,000, and the lowest 29; the average being about 35. During the next decade it remained below 30, reaching 19 in 1896-7, at about which figure it has since remained. About 23% of this is due to syphilis. Schwiening states that the rate of venereal disease is lowest in the Prussian Army, followed by the Bavarian, French, Belgian, Austrian, Italian, Dutch and English. There is a gradual decrease of about 2.8% in the Prussian, but syphilis is increasing, the proportion to gonorrhoea being 1 to 3. He states that soldiers as a rule take proper precautions for the prevention of venereal diseases, and these are more common in recruits. About 6% are recurrent cases.

The French rate, though considerably higher, has shown a like improvement. For the decade ending in 1885 the highest rate was 66, the lowest being 50, and the average 59. By 1894 it fell to 41, in 1898 to 33, and for the five years ending in 1907 the rates were:

Year.	Gonorrhoea.	Syphilis.	Chancroid.	Total
1903	19.2	5.9	1.9	27.0
1904	21.1	6.6	2.1	29.8
1905	19.8	7.0	2.3	29.1
1906	19.0	7.8	2.8	28.6
1907	18.35	6.75	2.78	27.8

Digitized by Google

The improvement in the French rate has been most marked for gonorrhoea.

The venereal record of Austro-Hungary has failed to show the marked improvement of its two great neighbors. The total rates for the decade ending in 1885 ranged between 81 and 66, the average being 73. During the next decade they were very uniform, being between 62 and 66. For the five years ending in 1907 they were:

Year.	Gonorrhoea.	Syphilis.	Chancroid.	Total.
1903	30.1	19.2	9.6	58.9
1904	31.8	19.3	10.5	61.6
1905	29.0	20.1	10.9	60.0
1906	30.1	19.2	11.3	60.6
1907	28.1	16.0	10.1	54.2

In Italy the rates fell steadily from 120 per 1,000 in 1863-5 to 47.5 in 1887. The following year, 1888, through the influence of English propaganda the reglementation of prostitution was abolished and the ratio at once rose. For the year ending March, 1889, it was 102.3. In Milan for the year ending October, 1889, there was over the previous year an increase of 1,654 admissions, of which 504 were for syphilis. This rapid increase occurred over the whole peninsula quickly following the abolition of the official regulation of prostitution and was so obvious and alarming that it was reestablished in 1891, but in a rather weak and ineffective manner (7). The recent Italian rates are not obtainable.

The venereal incidence in the Spanish Army of recent years is shown by the following table. One feature of it is the high rate for chancroidal ulcers. It will be observed that the proportion of syphilis is low, being for the six years only 13.7% of the total rate:

Year	1903	1904	1905	1906	1907	1908
Syphilis	12.17	10.43	9.42	8.79	11.64	13.66
Gonorrhoea	23.64	23.05	20.42	27.27	28.41	38.20
Chancroids	27.56	28.65	27.95	27.34	27.84	40.76
Total rate	63.37	62.13	57.79	63.40	67.89	92.66

Digitized by Google

The Russian total rates for recent years have been comparable to those of Austro-Hungary. For the last five years for which statistics have been accessible they were:

RUSSIAN ARMY—MEAN STRENGH, 1,279,051 MEN.

Year.	Total Venereal Rate.
1904	44.7
1905	59.2
1906	62.7
1907	60.1
1908	54.3

The rates for the several diseases were, for 1908, for syphilis, 17.8; gonorrhoea, 27.5; chancroid and venereal adenitis, 9.0. It will be observed that syphilis constitutes about one-third of the total rate, whereas in the U. S. Army it constitutes only 15%. This higher proportion of syphilis is to be observed in all of the European reports except the Spanish. Yet the contagious lesions of syphilis are more obvious than the slight secretions of a chronic gonorrhoea, which often require the use of a microscope for a diagnosis, and so it would be thought that the effect of the system of examinations would be to reduce the incidence of syphilis more rapidly than gonorrhoea. This was the result in England under the Contagious Diseases Act as will be seen later. Therefore, so high a proportion of syphilis in the military records may mean a greater prevalence of this disease in Europe, but probably means that the local and supposedly less serious affections are to a considerable extent omitted from the record because the soldier is not excused from duty while under treatment for them.

The French system of registration of professional prostitutes with houses licensed to conduct their trade, *maisons de tolerance*, but located, as a rule, within a certain prescribed district of the city, obtains in Belgium, Hungary, Spain and Portugal, Russia, and some of the Swiss Cantons. Holland has a modified form. The cardinal features of this system are:

(1) Registration upon conviction of being a professional prostitute and after a preliminary arrest and warning.

(2) Recognized houses of two classes—*maisons de tolerance*—in which the women live, and —*maisons de passe* to which they come for the purpose of their business only.

(3) Medical examination, usually weekly, which is conducted

Digitized by Google

either at the houses or at a dispensary, a small fee being charged for this service.

(4) Treatment at lock hospitals for those found diseased.

(5) Strict regulations as regards solicitation, display of the person, disturbance of neighbors, the presence of minors in the houses, etc.

It is not difficult to obtain erasure of the name from the register upon evidence of intended marriage, regular employment, return to relatives, chronic illness, etc. It is usually asserted by the abolitionists that this system makes return to an honest life impossible, but this is far from being the truth. The regulations are enforced by a special police and the system can be made self-supporting, as in Cuba and Spain.

The German system aims at police control of the individual women rather than sanitary regulation exercised through matrons or brothel keepers. Prostitution is not forbidden by the law, but it is subject to strict rules and ordinances. These include registration and examination, together with strict rules as to public demeanor and conditions of living. Houses of prostitution are forbidden and women are required to have their own separate rooms instead of being gathered into licensed houses as under the French system. However, violations of this law are frequent.

The English law, except during the brief life of the Contagious Diseases Act, has had no sanitary object, but treats the matter as one of preservation of public order and decency only, in which primitive theory it is followed by American communities. In the larger cities even this modest aim is not attained and the streets of certain districts of London are so choked with these unfortunate women in the evening as to be almost obstructed for respectable citizens of either sex. Such a system, even when well carried out, simply puts the evil out of sight but does nothing to repress it or to mitigate in any way its many evil consequences.

ATTITUDE OF THE ABOLITIONISTS.

In reviewing the past and present status of the venereal problem we have seen that two parties have arisen with diametrically opposite views as to the duties and obligations of the state as re-

Digitized by Google

gards the protection of the public health from this plague. The older, and in point of numbers the dominant party believes that it is as much the duty of government to protect its citizens against these as against other infectious diseases, and that to this end the physical examination and segregation of diseased individuals of a certain immoral and peculiarly dangerous class in the community is necessary. The other party which arose in England about 1870 and conducted a successful agitation for the repeal of the Contagious Diseases Acts maintained:

(1) That the control and regulation of prostitution by the State legalized vice.

(2) That the medical examinations of public women were an outrage upon the sex and tended to degrade them.

(3) That these examinations were worthless as a sanitary measure because disease could not always be detected, and infections would occur and be transmitted in the interval between examinations.

(4) That although valueless as a means of protection, they encouraged vice by giving a false feeling of security against infection.

(5) That by the examination of the prostitute and not of her male patron the hygienic value of the system is destroyed, while the unity of the moral law is destroyed and a double standard of morals created.

(6) Finally, it was declared that efforts at State interference with prostitution produced an increase in clandestine practice of it which could not be detected and rendered all measures of regulation futile.

The following considerations are advanced in opposition to these contentions which are taken up in order.

(1) It is an old saying that men cannot be made virtuous by Act of Parliament. It has been the universal experience of mankind in all ages and among all nations that sexual incontinence cannot be prevented by legislation, and it can by no means be logically considered legalization for the law to recognize and attempt to diminish the evil results of practices which it is unable to repress. To ignore them is to imitate the traditional habit of the ostrich.

(2) It is also a proverb that a rotten egg cannot be spoiled,

Digitized by Google

and it is difficult to understand what injury can be done by a medical examination to the modesty of a class whose trade necessitates the abandonment of all modesty and the habitual exposure of the person for hire. Moreover, professional examinations for the detection of disease are common occurrences of every day life and are not held to be in the nature of an assault even when made against the will of the individual, as in quarantine inspections or the examinations of soldiers held in our own and most other armies for the purpose of detecting venereal and other diseases.

(3) The statements of the abolitionists as to the worthlessness of physical examinations had more weight thirty years ago when first advanced than now when the routine use of the microscope has greatly assisted the diagnosis of chronic gonorrhoeal infection, but even in the seventies the military statistics show that routine examinations had great protective value. It does not require much knowledge of mathematics to perceive that even if one-third of the diseased among those examined escaped detection, the segregation and cure of the two-thirds would reduce by that much the amount of disease disseminated by the total number under regulation. Also these examinations can be made highly educational to this class in inculcating the value of personal cleanliness.

(4) It is difficult to say to what extent the fear of infection is potent in preventing immorality. Those familiar with the reckless disregard of danger by young men when under the influence of sexual passion are not inclined to attach great value to it. Medical students, for example, are thoroughly familiar with these dangers and yet they are not usually observed to be more moral than other students.

(5) These examinations are not a penalty for moral delinquency but a practical method of reducing (for eradication is not hoped for) the amount of venereal disease. The activity of a diseased male in this direction is necessarily far less than the repeated daily activity of the public woman. The examination of the male (except by the woman herself), however desirable theoretically, is not practicable in civil life, but in armies it can be and is carried out as a necessary part of any system of prophylaxis. While undoubtedly disagreeable to chaste and refined soldiers, it is, like many other disagreeable things in life, patiently submitted to for the public good.

Digitized by Google

The statement of the distinguished head of the Society of Sanitary and Moral Prophylaxis in New York in this regard that "The health officer of a port might as well attempt to prevent the importation from a plague-infested vessel by quarantining the infected women while permitting the infected men to go free," lacks the sense of proportion. The aim of the quarantine officer is different. It is to prevent the introduction of a single case of plague into a community which is free of it, and not to reduce the total amount of plague in the community by methods which it is recognized can never be more than partially successful. Moreover, the quarantine officer frequently adopts the policy of the venereal examiner. In passing the cabin passengers and detaining those in the steerage, he singles out the class which is shown by experience to be most dangerous.

(6) The inability of reglementation to control clandestine prostitution is by far the strongest and best sustained charge which can be brought against it and in the great cities it very seriously compromises the efficiency of the system. In smaller cities and garrison towns the difficulty is not so great and any body of police which is honest and vigilant has no great difficulty in becoming entirely familiar with the professional public women nor is there in practice any danger of mistaking honest women for members of this class by any but the most ingenuous and unsophisticated.

A candid examination of the arguments of the Abolitionists produces an impression of incompleteness, of failure to fully and fairly state the case. They appear to be arguments in support of a position already taken rather than reasons by which a conclusion has been reached.

And this is the fact. To few not trained to the physician's task is it given to look with a clear eye and dispassionate mind, alike upon the dread diseases which mar the frame of man and the foul passions that stain his spiritual nature. When to pure and ingenuous natures is revealed the infinite cruelties, the base and cowardly crimes, the sordid greed and filthy lusts that surround and permeate this dreadful trade, who can blame the abolitionist for the passionate revolt and burning indignation that will not coldly reason nor calmly debate on palliative measures, but sees in all such a league with death and a covenant with hell? Who can blame these select and untempted spirits for fixing their eyes

Digitized by Google

upon the fair vision in which the chaste youth of the land shall bring to the marriage bed the same virginal purity as that of their gentle mates? They insist with truth that these unfortunate women, the consorts and prey of criminals and degenerates, are the helpless victims of the lusts of men and that the only proper remedy is in the regeneration of mankind. This is especially the attitude of the women who initiated and largely supported this movement and who see in regulation a conspiracy of lust on the part of men to keep their sex in subjection for immoral purposes! A recent authoress, writing especially for nurses, advances this idea and proclaims votes for women as the first step in the social prevention of prostitution (8). Other steps which she advances as necessary are women police, the abolition of child labor, living wages for working girls; shortening of the hours of labor for working women; and assistance to widowed mothers. Finally a new ideal is needed: "of the worth and dignity of human life, and of a commanding place and power which must be assumed by women in all that pertains to the cherishing and ennobling of the race. This ideal must be built upon the single standard of sex morality and it must be attained by a gradual process of assumption of knowledge and authority by women, to the end that they may finally produce a nobler and a finer race of men." It is probable that the tyrant man would willingly grant votes for women and positions on the police force also, if the downtrodden sex could give effective guarantee that they would carry out the rest of the program, including the moral regeneration of man, by a date reasonably in advance of the millenium.

But can such ideals be made the bases of practical administration and be trusted to hold in leash the swinish hordes of brutal and degraded creatures that swarm in our streets—men and women without religion or honor or any trammel to their animal desires, except the fear of the law. Or even for the selected class from which the army is recruited, the plain, healthy, vigorous youth of sound body and honest but unpolished mind, denied the natural resource of marriage and cut off from the restraining influences of home, can moral precepts be relied upon to restrain an instinct which nature in her care for the race has made the most imperious of human and brute passions, one which has tried and tortured the saints of the church, which conquered the great

Digitized by Google

Psalmist of Israel, and many other holy men in ancient and modern days? We know that it cannot and will not. It is not a theory but a condition that confronts us, and as practical men we must meet it not with formulas and dreams and the propaganda of feminism, but with practical measures. Let us indeed work toward ideals, but let us not make our start from the clouds. For the present we are still under the hard law—"It must needs be that offenses come, but woe unto him by whom the offense cometh."

The methods of moral prophylaxis can fortunately be heartily concurred in and supported by all parties, but there is the practical objection to the limitation of effort to moral considerations that the spiritual uplift which will produce a race of Galahads and wipe out the sexual diseases is not likely to come to pass until the day when the lion shall lie down with the lamb and there shall not be war any more!

Two important international conferences for the Prophylaxis of Syphilis and the Venereal Diseases were held at Brussels, the first in 1899 and the second in 1902, at which the questions at issue between the Regulationists and the Abolitionists were thoroughly debated, but without arrival at definite conclusions as was to be expected between supporters of such opposite points of view. Col. Valery Havard of the Medical Corps, U. S. A., who was sent as a representative to the later Congress and who by his scholarly grasp of the question and judicial temperament was admirably fitted to weigh the evidence and the arguments submitted, stated as follows in his official report:

> The chief question was whether reglementation was justified on legal or moral grounds; and in view of the results obtained under it, is it legal, just, moral, for the government to tolerate and control houses of prostitution, and do statistics prove such regime to diminish venereal diseases?
>
> In spite of the long and full debates, no positive results or practical conclusions were reached, neither side succeeding in convincing the other. It was generally agreed that statistics on the subject are very incomplete and unreliable; that, being collected under different conditions and systems, they cannot be utilized for purposes of international comparison. It was also generally agreed that reglementation, as now carried out, especially in France and Germany, is very defective and ineffective and that it can not be maintained without serious modifications. To that extent the reglementarists show a spirit of conciliation, a desire to meet on a middle ground,

Digitized by Google

as expressed by Doctor Neisser. What most of them want is a progressive and complete reform of reglementation so that coercive measures would be applied only to those women who, in spite of all efforts made to reclaim them or keep them free from infection, would not give up prostitution or voluntarily seek treatment when diseased.. But the abolitionists stood firmly, one might say obstinately, by their principles and were uncompromising.

My own views on the subject of public prophylaxis as officially presented to the conference were as follows:

"After enumerating the excellent recommendations of the official committee of fifteen of New York City (The Social Evil, G .P. Putnam's Sons, 1902), which refer only to social and moral prophylaxis and can be heartily indorsed by reglementarists and abolitionists alike, I expressed my belief that statistics, as I had seen and studied them, especially those of the armies of various countries, indicated the positive effect of reglementation in diminishing venereal diseases. Likewise my personal experience in Havana during the American occupation had strongly predisposed me in favor of it under certain conditions. Having substantiated my position with facts and figures, I then continued about as follows: I am in favor of any system whose object is to restrict prostitution and prevent the propagation of venereal diseases. If reglementation attains such an end and gives such result, I am of the opinion that it is thereby justifiable and lawful. On moral grounds the state can lawfully permit or tolerate an evil (which experience has proved ineradicable) and regulate it by law in order to prevent a greater one; thus the state may tolerate houses of prostitution in order the better to keep them under control and mitigate the terrible results of venereal contamination.

"But although admitting the legality and morality of the principle of reglementation, I do not thereby conclude that it is to be imposed upon all circumstances. There are laws excellent in theory but of impossible application, and such laws are more detrimental than useful. Such is reglementation—good in theory, good also in practice under certain social conditions and when fairly administered, but worse than useless where public spirit is against it, and its honest, integral application, impracticable.

"All this being said, I wish to proclaim with emphasis my conviction that if official sanitary regulations may be good, moral prophylaxis is still better, that it must be the base and foundation of all reforms, and that without it none of the social evils can be successfully combatted. It is in the conscience of the young man that prophylaxis should begin. In the last analysis one must fall back ever upon the paramount question of education, that is to say, the development of Christian character, in which church and state are vitally interested and must promote by all possible means."

* * * * * *

"The conference recognized without discussion that one of the most efficacious means of checking venereal diseases is to make adequate provisions for their treatment. To that end the following resolution (offered

Digitized by Google

by Doctors Gaucher, of Paris, and Jadassohn, of Berne) was passed unanimously:

"'It is desirable that the law should insure to all persons suffering from venereal diseases gratuitous treatment in the largest measure possible; that all regulations in hospitals, dispensaries, and clinics discriminating against such persons be abolished; that in the treatment of venereal patients in public institutions due regard be paid to their feelings and that professional secrecy be respected.'"

* * * * * *

The following two resolutions, passed by unanimous vote, show the importance attached by the conference to the question of instruction:

1. Introduced by Doctor Troisfontaines, of Liege:

"To furnish each recruit coming to his regiment with a printed instruction upon the dangers of syphilis and gonorrhoea, reminding him of the necessity, when suffering from these diseases, of promptly consulting a physician, adding, if deemed useful, brief indications concerning the dangers of alcoholism and the prevention of tuberculosis. On leaving the service the soldier should not forget to carry this instruction with him."

2. Introduced by M. Minod, of Geneva:

"The most important and efficacious means of combating the propagation of venereal diseases is the largest possible vulgarization of our knowledge of the gravity and dangers of these diseases. It is especially necessary to teach young men that not only are chastity and continence not prejudicial to health, but, on the contrary, most commendable from the medical point of view."

CONCLUSIONS.

We have seen what were the measures which have produced so great and beneficial an effect with the British troops in India. With one exception (the segregation and treatment of diseased women in military reservations or their expulsion therefrom) they could be carried out today in American garrisons. All of the other measures taken by the British, except the stoppage of pay, were advocated by the Surgeon General of the Army in his Annual Report for 1910 (p. 60). These same measures were urged upon Chief Surgeons by the Surgeon General in 1908. But although action has been taken by some Department and post commanders the War Department has not spoken and no general and systematic plan of operations has been adopted by the highest military authority.

The following scheme is proposed and the means stated by which its details may be carried out:

(1) *The Encouragement of Athletics and Wholesome Amuse-*

Digitized by Google

ments. It was well understood by the ancients with whom physical culture was a matter of national military policy that arduous physical exercises had a sedative and controlling influence upon sexual passion and this is confirmed by modern physiologists. Athletes are not roués and conversely. Therefore for moral as well as military reasons athletics should occupy a large part of the daily life and attention of the soldier. This object is not entirely accomplished by having a thousand men watch eighteen play the national game although as an amusement its value is undoubted. A couple of bowling alleys and as many tennis courts go but a little way towards the exercising of a regiment. The velvet sward of a perfectly kept parade ground is fair to the eye, but men are of more importance than grass and two dozen tennis courts would better utilize the ground. Not only should adequate provisions be made on a large scale for the athletic needs of the garrisons but company officers and noncommissioned officers should be watchful to see that each individual soldier became interested in and practiced some athletic exercise. This could be accomplished in many ways. Special drills could be devised, or extra fatigue work for the sluggards. The Post Exchanges have done much in recent years for athletics and for the providing of amusements for soldiers, but much more could and should be done. The provision for athletics as above suggested is not on a sufficiently large scale and the reading room is often a dingy affair with uncomfortable chairs and few books, papers, and magazines. The Exchange devotes too much of its profits to dividends to company funds which in view of the liberality and elasticity of the ration of today might better be spent on the Soldiers' Club. This name should be substituted for the meaningless one of "Post Exchange," as more attractive and as indicating more perfectly the object of the institution, and every effort should be made to make it an attractive club.

(2) The venereal wards of the hospitals are crowded with lusty idlers who loaf through a tedious convalescence and accumulate pay to spend in fresh dissipations when they recover, while their companions in the companies do their work. The pay of these men should be forfeited while off duty, as is done in the British service, and with excellent effect as we are informed by the official reports. The number of sick days lost because of

Digitized by Google

venereal diseases in the Army for the year 1909 was 692,355, and the value of the pay of enlisted men for these days was $448,-716.38. Congress should be asked to devote this pay to a Soldiers' Club Fund which should be expended under the direction of the Secretary of War for the erection, enlargement, and repair of Soldiers' Club buildings, for their maintenance, and for the encouragement of athletic sports and amusements. Fifty per cent of the net profits of sales made by the Club (now Post Exchange) should also go to this fund. In the same Act—which should be entitled—"An Act for the Encouragement of Morality, Temperance and Physical Development in the Army," provision should be made for the sale of beer and light wines in Soldiers' Clubs, after the working hours of the day are over. In this way only can the Soldiers' Club be made sufficiently attractive to successfully compete with the meretricious attractions of the saloon and the dance hall.

(3) The education of the soldier in sexual matters and moral standards while, as we have seen, it cannot be safely relied on to the exclusion of other agencies, is of the utmost importance and should be carefully arranged and carried out. Each recruit upon enlistment should be given a little booklet, such as Havard's *Venereal Peril,* but handsomely printed and neatly bound so that he will be tempted to preserve it. The soldiers' handbook should have a short, well written chapter on this subject. The recruit should have plain, sensible talks from his officers at the depot, not necessarily from the already over burdened depot Surgeon, but given by the line officers of the recruit companies. At the posts there should be lectures by the Chaplain, more talks by the company officers and medical officers, and the commanding officer should occasionally show his interest and approval by his presence. It has been suggested that the cinematograph could be used to advantage in connection with this instruction.

(4) *Temperance (total abstinence) societies should receive official encouragement.* There is no inconsistency between the encouragement of these and the authorization to sell beer because men are not all alike and cannot be managed by procrustean methods. True temperance is our object, and experience has shown that for some men, probably the majority, this can be best secured by supplying mild alcoholic beverages, while for others

Digitized by Google

total abstinence is necessary or desirable. It might be found advantageous to authorize the wearing of an approved ribbon or badge with the uniform by members of temperance organizations.

(5) The inspections of the troops at all garrisons, stripped, to detect venereal diseases, bad conditions of the feet and other ailments which affect military efficiency is now in vogue at many posts in the Army. It should be required at all posts at least twice a month and at unexpected times. Such inspections are especially necessary if pay is stopped for time lost from venereal diseases in order to prevent their concealment. A War Department order should require that men found concealing such diseases should be punished *not* for having the disease, but for failure to report to the medical officer for treatment.

(6) *Methods of venereal prophylaxis for those who cannot be persuaded to practice continence*: This may, like the temperance question, appear to involve an inconsistency with the teachings of continence and self-control, but such is not really the case. All except those who deliberately shut their eyes to the teachings of experience must recognize that perfect continence in all men is an unattainable ideal, and for those who cannot or will not attain it instruction in the protective value of personal cleanliness and disinfection after exposure is logical and useful. A simplified packet containing a silver preparation for the urethra and a 30% calomel ointment for outer application should be kept for sale at cost at the Soldiers' Club. Their issue gratis by the Government, as at present, will doubtless prove inordinately expensive if the men become impressed with their value and if they can sell them or give them away at pleasure. The special toilet room in each company with facilities for washing and a supply of disinfectants (potas. permanganat. 1 to 2,000, or argent. nitrat 1 to 200 for irrigation; calomel ointment for external application) is believed to be better except in special cases than the preventive packet.

The heedless carelessness of the men that makes them indifferent to venereal infection is the greatest difficulty at present in any system of prophylaxis. This is to be met both by systematic instruction as described above and by the loss of pay which will doubtless have a powerful influence in making those who will not be good, be careful.

Digitized by Google

(7) Authority should be given to medical officers to report by number instead of by name officers and men who apply for treatment, but who are not excused from any part of their military duty. This is necessary to insure prompt treatment and preserve the patient's confidence, and at the same time to secure full and accurate statistics.

The influence of state legislation upon the problem before us as applied to the Army will be general in character rather than specific except in so far as it may be invoked to grant municipal charters to garrison towns containing adequate powers for Health Authorities to deal with these diseases. It is quite improbable in view of the determined stand taken by the opponents of regulation in America that any system of licenses will be adopted. Fortunately it is not necessary. But the recent adoption of a law in the City of New York looking to the medical examination of prostitutes who are arrested for any cause, and the proposition made by the Vice Commission in Chicago in April, 1911, looking to notification of all cases of venereal diseases and a thorough examination of prostitutes by the Board of Health, is significant of progress. It should be observed that the membership of this commission includes six ministers of the gospel, two judges, four professors, four physicians, and two women, one of these a physician. Such control if applied to the smaller cities near military posts such as San Antonio, Leavenworth, Junction City, Indianapolis, Atlanta, Columbus, Denver and Cheyenne, especially when used in conjunction with the periodical physical examinations of the troops cannot fail to produce excellent results. Such action on the part of the municipal health authorities can probably best be obtained by tactful negotiations on the part of post commanders.

The problem for the Navy at shore stations is identical with that outlined above for the Army. Afloat it is much simpler and consists in the method already successfully put into practice on a number of ships in the service—namely, the careful instruction of the crew in sexual hygiene and in the dangers of promiscuous incontinence, the questioning of all men on return from shore leave as to exposure and if this is admitted, methodical cleaning and disinfection. If the sailor denies exposure and afterwards develops venereal disease he is punished for making a false statement.

Digitized by Google

In shore leaves involving more than 12 hours, opportunity to obtain a preventive packet should be given. The Navy suffers at present like the Army from the failure of the highest military authority to adopt a clear cut systematic policy and to vigorously enforce it. This is the most valuable lesson which can be learned from Lord Kitchener's administration in India.

BIBLIOGRAPHY.

(1) Bulletin de la Societe Internationale de Prophylaxie Sanitaire et morale.
(2) The Military Surgeon, Vol. 25, p. 734.
(3) Munson, Camp Diseases. Ref. Handbook of the Medical Sciences. Wm. Wood & Co., Vol. II.
(4) Journal of the American Public Health Association, March, 1911, p. 181.
(5) The History of a Sanitary Failure, by Henry J. Wilson, M. P. (published by the British Committee of the International Federation for the Abolition of the State Regulation of Vice—1900.
(6) Circular No. 10, A. G. O., March 18, 1902.
(7) The Prophylaxis of Venereal Diseases, Havard—The Military Surgeon, Vol. 15, p. 4.
(8) Hygiene and Morality, Lavina L. Dock. G. P. Putnam's Sons, New York.

Digitized by Google

A NEW DIET FOR TYPHOID FEVER, WITH NOTES.

By Surgeon W. M. GARTON, U. S. Navy.

THE dietetics of typhoid fever and its results having been so remarkably successful at this hospital (Norfolk, Va.) in the past two years and especially so during the recent, and one of the most acute, epidemic the Navy has experienced (at one time sixty-five acute cases were under treatment) has caused me to submit the following report:

Typhoid fever has been endemic at this hospital during my entire service, and as prior to that time no special or particular diet had been prescribed for all typhoid cases, I tried to formulate a diet that would, if possible, meet all conditions and stages of the disease; mainly, reduce amount of secondary toxemia (auto-infection), tympanites, avoid hemorrhage, prevent perforation and at the same time to have the patient in as good condition as regards to strength and flesh at the end of the disease as possible.

The first step was the elimination of milk; a milk-free diet, having greatly impressed me from the reports of Dr. Lambert of New York city. The results were very good indeed, and I decided to try and satisfy myself why such was the case. After going into the subject most carefully I noted down the following facts:

1. The protein of our food fulfils two general functions: Its oxidation furnishes energy, especially heat energy to the body, and, moreover, a portion of it is used to reconstruct the living protoplasm which breaks down in the functional activity of the tissues. The non-protein food also furnishes heat energy and work energy, and can replace this part of the function fulfilled by the protein. With reference to the consumption of protein in the body the non-protein foods are all protein-sparers and herein lies one great peculiarity of their nutritional value.

2. Chittenden states that increased nitrogen with protein indigestion does not add strength to the system, but is eliminated in the urine and feces in increasing amounts and very little being

Digitized by Google

utilized, that is, a small part of the nitrogen ingested is taken up by the body.

3. Nitrogen being pased by both feces and urine in increasing amounts, it is reasonable to conclude that the minimum amount should be given when we consider that before being excreted it first enters into irritating and toxic nitrogenous compounds shown in the urine by ammonia compounds, indican and other irritants.

4. Overfeeding of nitrogenous food is a cause for increased bacterial decomposition and intestinal fermentation, maldigestion and autoinfection.

5. The absorption of toxic nitrogenous compounds causes an irritation of the vasomotor system causing a constriction of the blood vessels of the skin, hence diminishing perspiration and heat radiation.

6. During fever the glycogen of the liver diminishes and if starchy food is not given it may entirely disappear—also the fat of the body is the first to burn.

7. Maldigestion may develop an acidosis of the system or a diminished alkalinity of the blood.

8. Shock or vasomotor dilation, a not uncommon cause of death in typhoid fever, has been attributed to the absorption of the toxins from the intestines and their action on the adrenal glands.

9. Absorptive toxins are more frequent and more serious in protein maldigestion than in starch maldigestion.

Physiologic experiments have shown that the glandular secretions of the gastro-intestinal tract in typhoid fever are diminished, shown by dry mouth, coated tongue, sordes and sometimes acidity of the salivary glands; remedied by lemonade and orange juice and sodium chloride in food.

With these facts in view I concluded that a minimum nitrogenous diet was what was indicated and the results have justified this conclusion.

A menu was formulated consisting of principally carbohydrates and fats that would meet the requirements of a minimum nitrogen equilibrium.

The following table is the complete diet given in 24 hours with notes on preparation, method of feeding, etc. It is the result of over two years' work and has been changed many times due to the

Digitized by Google

valuable suggestions of the Medical Officers who have been in charge of the typhoid fever ward during that time.

The use of Robinson's Barley and Bethlehem Oats was due to the excellent results obtained in the feeding of infants and its adoption in typhoid feeding has not been disappointing, but to the contrary has given excellent results.

The interval may be increased to three hours and, if necessary, the amount can be reduced, but the patient should be urged to take as much as possible.

Begin diet about 6:30 a. m. Interval between feedings, two hours.

6:30 a. m. One cup hot coffee with two drachms sugar. No cream. Two slices of zwieback or buttered toast.

8:30 a. m. One portion of Jordan's Bethlehem Oats or Robinson's Patented Barley, according to bowel indications, with six buttered crackers, saltines.

10:30 a. m. Six ounces soup. Change recipe occasionally.

12:30 p. m. One medium baked potato, mashed and prepared with ounces of butter. Add large pinch of salt. Two thin slices of buttered toast, hot, and one cup hot weak tea with two drachms of sugar.

2:30 p. m. Two teaspoonfuls of pudding, bread or tapioca, preferably the latter, and six saltine crackers.

4:30 p. m. Two ounces of rice, Farina or Cream of Wheat, thoroughly mixed with one ounce of butter and four drachms of sugar. Change from day to day to alter diet.

6:30 p. m. Three slices of buttered toast.

8:30 p. m. Six ounces of soup.

The following are the recipes for soups allowed; the pea and bean skins should be removed:

Black Bean Soup.—1 pint black beans, 2 quarts cold water, 1 small onion, 2 stalks celery or ¼ teaspoonful celery salt, ½ teaspoon salt, 3 teaspoons butter, 1½ teaspoons flour, 1 lemon. Soak beans over night; in the morning drain and add cold water. Slice onion and cook five minutes with half the butter, adding to beans, with celery stalks broken in pieces. Simmer three or four hours, or until beans are soft; add more water as water boils away. Rub through a sieve, reheat to the boiling point, and add salt, well mixed. Bind with remaining butter and flour cooked together. Cut lemon in thin slices, removing seeds, put in tureen and strain soup over the lemon.

Baked Bean Soup.—3 cups cold baked beans, 3 pints water, 2 slices onion, 2 stalks celery, 1½ cups stewed and strained tomatoes, 2 tablespoons butter, 2 tablespoons flour, salt; put beans, water, onions and celery in saucepan; bring to boiling point and simmer thirty minutes. Rub through a sieve, add tomatoes, season to taste with salt, and bind with the butter and flour cooked together. Serve with crisp crackers.

Digitized by Google

Vegetable Soup.—1-3 cup carrot, 1-3 cup turnip, ½ cup celery. 1½ cups potato, ½ onion, 1 quart water, 5 tablespoons butter, ½ tablespoon finely chopped parsley, salt. Wash and scrape a small carrot; cut quarters in thirds lengthwise; cut strips thus made in thin slices crosswise. Wash and pare half a turnip, and cut and slice same as carrot. Wash, pare and cut potatoes in small pieces. Wash and scrape celery and cut in quarter inch pieces. Prepare vegetables before measuring. Cut onions in thin slices. Mix vegetables (except potatoes), and cook ten minutes in four tablespoons butter, stirring constantly. Add potatoes, cover and cook two minutes. Add water and boil one hour. Beat with spoon or fork to break vegetables. Add remaining butter and parsley. Season with salt.

Tomato Soup.—1 can tomatoes, 1 pint water, 12 peppercorns, bit of bay leaf, 4 cloves, 2 teaspoons sugar, 1 teaspoon salt, ⅛ teaspoon soda, 2 tablespoons butter, 3 tablespoons flour, 1 slice onion. Cook tomatoes, water, peppercorns, bay leaf, cloves and sugar twenty minutes; strain, and add salt and soda; bind and strain into tureen.

Tapioca Wine Soup.—1-3 cup pearl tapioca, 1 cup cold water, 3 cups boiling water, ½ teaspoonful salt, 3 inch piece cinnamon, 1 pint claret wine, ½ cup powdered sugar. Soak tapioca in cold water two hours. Drain, add to boiling water with salt and cinnamon; boil three minutes, then cook in double boiler until tapioca is transparent. Cool, add wine and sugar. Serve very cold.

All soups to be strained through a fine sieve.

The patient should be fed with an "Ideal" feeding cup or spoon and the food should be given slowly. Don't hurry the patient. Give water between meals. Give nitrogenous nutriment as soon as the convalescence is established, beginning with liquid beef peptonoids, panopepton, buttermilk, etc.

At the height of the fever if these foods are distasteful or if the patient cannot eat the full quantity, reduce amount and add milk sugar in considerable quantity.

Give the patient three grains of Sugar of Iron, t. i. d. or four drops of Tr. Ferrous Chloride in fresh lemonade, t. i. d.

One portion of Jordan's Bethlehem Oat Food or Robinson's Patent Prepared Barley is a dessertspoonful before being prepared into a gruel. The former is prepared according to the directions on the box for confinement cases, including nutmeg and sherry wine for flavor.

If the bowels do not need regulating and a change is desired substitute at 8.30 a. m. the following: Two heaping teaspoonfuls of Cream of Wheat gruel or Farina and a handful of oyster crackers.

Water should be given almost ad libitum (internal hydrotherapy).

Orange and lemon ices can be given when ordered.

A special diet kitchen has been installed in which this typhoid fever diet is cooked, and great care is taken in its preparation and to see it is served in a way that will not be repulsive, but tempting, to the patient. This diet kitchen is under the supervision of a nurse especially detailed for this duty.

Digitized by Google

As typhoid fever is practically endemic at this place one ward is completely equipped for typhoid fever and one nurse and six hospital apprentices, when available, are detailed for this ward.

The Hospital Apprentices receive teaching and special instructions in the treatment of this disease from the nurse detailed in the ward under the supervision of the Medical Ward Officer.

The following instructions are now in the use of the ward:

(a) Special typhoid diet for all bed patients.
(b) Sponge or cold pack for temperature over 103.
(c) Cleansing bath every morning.
(d) All excreta to be thoroughly disinfected in special apparatus installed for this purpose.
(e) Bed linen to be thoroughly disinfected in steam chamber before being sent to laundry.
(f) Change bed linen as often as may be necessary.
(g) All bed patients to have back rubbed with alcohol every morning. Watch carefully for bed sores.
(h) Hands and nails of all patients to be thoroughly cleaned every morning, after stools, before meals and baths.
(i) Keep mouths of all patients clean and teeth free from sordes.
(j) Watch carefully for any sudden change in temperature, pulse, blood, in stools, or abdominal tenderness. If any of these occur notify Ward Medical Officer at once, or in his absence the Officer of the Day.
(k) All patients to have water ad libitum.
(l) Keep ice caps well filled and to head after it has been closely clipped, if temperature is over 102 or marked nervous symptoms.
(m) Fresh sputum cups every morning.
(n) See that all dishes are boiled immediately after use.
(o) Soap suds enema every morning.
(p) Medicine glasses to be kept in solution of bichloride of mercury, being careful to wash thoroughly before using.
(q) Nurses and apprentices to be careful to wash hands thoroughly and soak them in bichloride solution after handling patients and to wear special provided coats.
(r) No visitors to be allowed in the ward without special permission of the Officer of the Day. No food of any kind to be taken to the ward by visitors.
(s) Disinfect penis after urination.
(t) Disinfect buttocks thoroughly after stools.

This ward is specially screened and great care is taken to eliminate the presence of flies.

In concluding, I wish to state that 175 typhoid fever cases have been treated at this hospital in the past two years with a record

Digitized by Google

of five deaths. These cases on admission represented all types and stages of the disease and cannot be considered selected ones. As a general rule, the fever has been moderate, nervous symptoms absent, hemorrhage in less than ten cases, and perforation of the bowel in one case, flat abdomen the rule, marked loss of flesh the exception and a craving for food rather unusual. When the patient is able to get up, his general appearance does not present the usual striking picture of emaciation and he rapidly regains all his strength and is ready for duty as soon as three negative stools have been obtained. Relapses and secondary infection have occurred in a very few cases.

Digitized by Google

TREATMENT IN TYPHOID FEVER.*

By Surgeon CHARLES P. WERTENBAKER, United States Public Health and Marine-Hospital Service.

THE chief object of this paper is to bring out discussion of the treatment in typhoid fever. It is a subject with which we are all more or less familiar, and on which most of us have very decided opinions.

I am led to bring the subject to your attention by the fact that recently the practice of feeding solid food to patients throughout the entire course of the disease has been introduced, and I am told by some physicians that they have had most excellent results from it.

As this practice is so directly opposed to all that I have been taught, and with my practice for nearly thirty years, I feel that there is something more to be learned on this subject, and I believe that a discussion of it by this Association will prove not only interesting but extremely valuable.

In order to establish a basis for the discussion I will state briefly the treatment that I have used for a number of years, and the results that have been obtained. I fully realize that the experience of one practitioner is not sufficient to determine the value of a certain line of treatment, but it is useful in showing what has been done in that line.

In discussing any form of treatment it should be remembered that a large percentage of all cases of typhoid will recover without treatment, if the physician and the friends of the patient will permit. I know of no disease in which a policy of "masterly inactivity" on the part of the friends of the patient will produce better results. I venture the assertion that more patients, suffering from typhoid, die from the ill advised efforts of their friends than from the effects of the disease.

When I commenced the practice of medicine, now nearly thirty years ago, it was the practice to feed the patient nothing but milk. Sweet milk was chiefly used, though buttermilk was substituted at times. Practically there was no other treatment; but few, if any, drugs were used. The idea of giving solid food was not

*Read by title at the 20th Annual Meeting.

Digitized by Google

thought of for a moment. It was believed that solid food would kill the patient, and I have more than once seen fatal results follow taking solid food.

The results following the feeding of milk, only, were good in my own practice, and I recall having lost very few cases. Some fifteen years ago it was brought to my attention that milk is an excellent culture material for typhoid bacilli, so I abandoned the practice of giving milk to typhoid cases, and substituted a diet of orange juice alone, and since that time my treatment of typhoid has been about as follows:

On commencing the treatment usually a dose of castor oil is given, combined with some of the aromatics, for the purpose of clearing out the bowels. Nothing in the way of food is given excepting orange juice of which the patient is allowed as much as is desired. Usually a pint or more of the juice is consumed in 24 hours. The juice is squeezed from the oranges, strained, and given cold. Patients generally like it, and do not tire of it as they did of a milk diet. The patient is encouraged to drink water freely, and is given tea freshly made, when desired.

Little or no medicine is given; an occasional dose of turpentine emulsion, or assafoetida is given if tympanites is present. Lately I have been giving 10 drops of dilute hydrochloric acid three or four times a day. I usually use strychnia as a heart stimulant. The lower bowel is washed out by an enema once or twice daily. A sponge bath is given whenever the temperature reaches 103° F., but this is seldom necessary. I have never used the tub bath to reduce the temperature in typhoid, as I have never found it necessary. The patient and his discharges are carefully screened against flies.

Under this treatment the disease runs a regular course, the temperature seldom rising above 103° F., and but few complications have developed. The tongue remains fairly clean, that is to say, it is seldom that one sees that thick creamy coat on it, and sordes gathering on the teeth and lips. The abdomen is usually flat, denoting the absence of gases in the bowels. The temperature usually returns gradually to normal about the 21st day. When the temperature has remained normal for 48 hours, the tongue clean, and the red edge at the tip has disappeared, I allow the patient one soft boiled egg, with a cup of tea or coffee. The egg

Digitized by Google

is put in a cup, boiling water poured over it, and it is allowed to remain for ten minutes. This thoroughly cooks the egg, but the white remains soft. The patient is carefully watched through the day, and if no unfavorable symptoms arise two such eggs are given three times during the next day, and thereafter the diet is gradually increased, adding crackers, hominy, mashed potatoes, milk toast, etc., until at the end of a week, or ten days, the patient is on a restricted solid diet. The discharges are examined bacterialogically and must be negative before patient is discharged.

The results of this treatment have been excellent. I have no statistics formulated, but I recall but one death within the past five years of any typhoid patient that was received within the first week of the disease. The case that died was a negro who died within seven days, seemingly overwhelmed by the disease. All the others ran a regular, and often an uneventful course to recovery. Hemorrhage from the bowels occurred in a few cases, less than 5 per cent, but I have never had a death from this cause. I have tried to ascertain the reason for the marked success that has attended this treatment. There seems to be no inherent virture in orange juice, so I came to the conclusion that the good results were due to the fact that no food reached the intestines and consequently peristalsis was reduced to a minimum, and the bowels were kept at rest as far as possible.

The condition found in the bowel in typhoid is one of inflammation of Peyers patches, frequently followed by ulceration. One of the elemental principles in the treatment of any inflammation is rest. Orange juice and water are probably absorbed in the stomach, consequently there is nothing to pass in to the bowel to excite peristalsis which irritates the inflamed and ulcerated surfaces. As there is no food, there are no undigested particles to undergo fermentation, producing gases which distend the bowel, with the possibility, and not infrequent result, of perforation of the bowel. It can be readily understood that where an ulcer has extended down to the peritoneal coat of the bowel, and that coat is much softened and weakened, it would require but a slight increase in the pressure of the gases in the bowel to cause a perforation at that point. This is just what does happen in a majority of cases of perforation. Had the bowel been kept empty and quiet, it is possible that the gases would not have developed, and this extra strain would not have been thrown on the weakened spot.

Digitized by Google

We have all seen how quickly a patient suffering from an acute attack of appendicitis, with constant vomiting, pain, etc., improves, and grows quiet, when the stomach and intestines are cleared of food, and kept absolutely at rest.

If such results follow in appendicitis it seems natural that they should, as in fact they do, follow in typhoid fever, or other inflammatory conditions of the bowels.

In all these inflammatory conditions, and particularly in typhoid, the normal functions of the cells are impaired, metabolism is more or less disturbed, and even if food is present it is absorbed with difficulty.

Should there be an excess of it, or for any other reason the food is not absorbed it is liable to undergo fermentative changes, producing gases, and consequent ballooning of the bowels. This greatly increases the possibilities for perforation, and interferes with healing of the ulcers.

With these facts before me, and in the present state of my knowledge of other or better methods, I should hesitate a long time before I abandoned a practice that has given me such uniformly good results to "fly to those I know not of."

This is my present opinion, but I am always ready to learn, and as I have been told by men whose opinion I value, that they have had excellent results from feeding solid food to their patients, I have offered this paper to bring out a discussion of the subject. I hope it will be discussed freely so that we may be able to draw conclusions from the experience of our members.

Digitized by Google

MOUNTED HOSPITAL CORPS MEN.

By 1st Lieut. GEORGE F. CAMPBELL, Medical Reserve Corps, U. S. A.

THOSE cognizant of the facts doubtless agree that something ought to be done to provide a better type of mounted hospital corps men for mounted commands, with special reference to requirements of field service and perhaps of actual war. To reiterate a truism, the time to develop this idea is when the Dove of Peace overspreads her wings over the smiling landscape, and, not during the rush and hurry of mobilization. Secondly, the subject of systematically providing suitable and adequate mounts for hospital corps detachments that will at all times be available for purposes of constant training and instruction is worthy of careful consideration and persistent attention until a satisfactory understanding has been attained.

All this more so, in that when mounted commands are needed they are required in a hurry and may have to cover rapidly a large extent of territory, requiring even in time of peace adaptability, fitness and great endurance which alone comes from proper selection and assiduous training.

Under such conditions there is no time to requisition mounts for hospital men nor is there time to train and harden men so that they will be fit to go in the field, and what is of more importance, not only stay there day after day, but be of material assistance to others which is the chief end of an hospital corps man in time of sickness or calamity. Cavalry posts are often isolated and undesirable, far removed from those things that make soldier life attractive to a young man and it has thus occurred that hospital men of bad habits, of no special aptitude or training, and who ill-brook discipline, have been sent to these outlying posts more by way of punishment or to separate them from temptation than for any utilitarian purpose. It would perhaps be better in some way to separate these men from the service altogether or transfer them to the line than to saddle them upon mounted commands where the most active and intelligent men are really required.

Digitized by Google

In this connection we are of course confronted with the difficulty of getting a suitable type of recruit for the hospital corps, at present, owing to the better inducements in other branches of the military service, and owing to the fact that for the amount of steadiness and intelligence required for the arduous and responsible duties (when properly performed) of an hospital corps man the pay and promotion are not at present proportionate. The Army hospital corps should at the very least be reorganized and put on the same status as the Navy. Considering the greater moral, intellectual and scholastic requirements of a first-class hospital corps man more pay, and better prospects for promotion should be offered with perhaps ultimately the attainment of some such reward of long service and fidelity as hospital quartermaster with junior officer's rank.

There is no noncommissioned officer of more importance to our Army than a well trained and experienced hospital sergeant, but a man of the required mental and moral calibre will soon gravitate to other positions where the salary and rank are more in conformity with the responsibilities and duties involved.

With better pay and prospects a better grade of men could be secured and the drunks, dopes and unfit, carefully and consistently eliminated. We could thus in time of peace develop an hospital corps of which any army might well be proud and which in time of war would form a solid foundation upon which the superstructure of our fighting sanitary force could be built.

In reference to this subject of training members of the hospital corps so that they will be at all times fit for duty with mounted troops in the field or in time of war, I have the honor to recommend that recruits be enlisted:—

For the hospital corps, mounted, and for the hospital corps, foot; instead of promiscuously as at present.

A more effective community of interest between a mounted command and the hospital corps detachment on duty with it, especially in the field or in time of war, would seem to be of pressing import in view of the tendency to make our small Army a select and efficient fighting machine. The present system is defective in the translation of hospital men from foot to mounted duty without adequate preparation, adaptability or proper opportunity for developing efficiency. As well send a company of coast artillery out west, put them on draft horses, dub them cav-

Digitized by Google

alry and expect them to get anywhere as to look for efficiency in an hospital corps man under what amounts to practically the same conditions.

In view of the increasing amount of field work now required of our Army, it would appear that the type, preparation and equipment of the hospital men detailed for duty with mounted commands are worthy of further careful study and consideration by those interested in and experienced in this problem.

As is well known the value of mounted troops depends on their mobility, and the ability to cover, when necessary, a great amount of ground or in other words to get there at all costs. Anything in the nature of impedimenta is fatal to the success of such movements. Experience has shown that hospital corps men sometimes become unfit to continue in the field with a mounted command from lack of endurance but more from lack of consistent training and still more often from the sorry quality of mounts in many instances supplied. The question then is are our hospital men to raise a doubt in troop commanders' minds as to whether or not they will become impedimenta or can they be made fit not only to hold their own in equitation, care of animals, etc., with trained mounted troops, but be able further to render full assistanc to the sick and wounded in case of need in peace or in war?

Experience compels me to admit that many of the mounted hospital men at present have all they can do to keep up with the command and to take care of themselves without being of much assistance to any one else; as surgeon's mounted orderlies they are often quite worthless, sometimes requiring help in the handling and management and care of their mounts instead of being available to assist the surgeon so as to leave the latter free to concentrate his thoughts on other duties.

The hospital corps man to be of much value to a mounted command in the field should be:—

First, as to his horse—decently and properly mounted.

Second, as to himself—A. A specially selected type: that is a man who deliberately chooses the mounted service in preference to foot service usually for some such reason as:

(a) a love of animals.

(b) a fondness for riding.

(c) a hereditary trait of association with live stock.

Digitized by Google

(d) some practical experience in the care and handling of horses.

(e) short body and long leg type of man.

(f) fondness for outdoor work and camp life.

A man should not be selected for mounted duty of the abnormally short leg and long body type. An inside trouser seam of at least 30 inches should be required of all applicants for mounted duty. A man with a shorter leg than this will seldom if ever acquire equestrian skill with the size of horse supplied to mounted troops.

Another point worthy of note is the different type of man required for ward duty, dispensary or clerical work and that for field duty and mounted service. For the latter the wiry, hardy type, accustomed to life in the open should be made available, and steadily developed.

B. To be of much use to a mounted command in the field the hospital corps man must be of a specially trained type.

The making of mounted soldiers takes time and they are kept fit by constant hard mounted work. The hospital corps man, however, who may be abruptly called on to keep up with these well trained men gets a brief course in equitation at the school of instruction; that is, presumably he does now, although while at the school of instruction at Washington Barracks in 1898 I do not remember seeing anything that looked like a horse.

Presupposedly we are more advanced than at that time and that equitation is now taught systematically at these schools also at some posts men not qualified in equitation are reported to a troop for a partial recruit course in equitation.

Very often, however, suitable mounts not being available the valuable lessons thus learned are not kept up and there is nothing so devoid of practical result as spasmodic and disconnected equestrianism. As has been said it is only by continuous and constant practice that the mounted man is kept fit for field service.

It is recommended in the second place that there be organized a distinctly mounted company of instruction for hospital corps men who have been enlisted for service with mounted commands. The company stationed at Fort D. A. Russell, Wyo., would be available for this purpose and could be turned into a mounted

Digitized by Google

command and exclusively trained with this purpose in view. Not a few sporadic and isolated hours of instruction, but living on and with a horse until it becomes a habit, until riding and caring for a horse become such a familiar and easy task that the hospital man will be able not only to take care of himself and his mount but be able to render full assistance to the sick and wounded.

At such a school we leave the hospital man fully assured that when he graduates he will be a desirable addition to any mounted command, after which provision should be made to keep him constantly fit, and this is where the question of supplying a sufficient number of proper mounts for hospital detachments with mounted commands requires solution.

It might be possible to add to each mounted command a certain number of horses assigned to hospital men, who could attend stable call and drill or exercise an hour or more a day with the command and identify themselves with and become as far as possible an integral factor of the command but otherwise be instructed and trained and available for a certain amount of duty at the hospital.

It might be well here to suggest that something definite be promulgated in regard to the number of hours a hospital corps man should be on duty proper. At present they are often on call all the way from a few hours a day to twenty and sometimes more, if necessary. In these days when workmen are clamoring for an eight-hour day it might be well to do something for the hospital corps man. It has sometimes been objected to by suitable men whose transfer from the line has been sought that the work-a-day hours of hospital men are too indefinite and too long.

Two hours a day in the saddle, four days a week should be required as necessary preparation of all hospital corps men likely to be called upon to administer to the sick and wounded men on practice marches in the field or in time of war with mounted commands.

These views are suggestive rather than conclusive and may not all be of practical utility, but are offered in the hope that some feasible plan may be formulated for bettering sanitary service for mounted commands on practice marches, in the field, and in time of war.

Digitized by Google

REPORT OF THE U. S. ARMY BOARD FOR THE STUDY OF TROPICAL DISEASES AS THEY EXIST IN THE PHILIPPINE ISLANDS.*

By Major WESTON P. CHAMBERLAIN, Medical Corps, U. S. Army, Captain EDWARD B. VEDDER, Medical Corps, U. S. Army; 1st Lieut. JOHN R. BARBER, Medical Corps, U. S. Army.

THE Board for the Study of Tropical Diseases, as they Exist in the Philippine Islands, has the honor to submit the following report of its work for the quarter ending March 31, 1911:

Captain H. D. Bloombergh, who had been a member of the Board since March 23, 1910, left the Division February 14, 1911, and his place was taken by Lieut. J. R. Barber, who reported for duty on February 15, 1911.

ZAMBESI ULCER.

The Board was much interested on seeing in the *Journal of Tropical Medicine and Hygiene* for January 2, 1911, the description by W. J. Bruce of a condition which he has named *Zambesi ulcer,* and in which he found constantly present a spirillum and a large fusiform bacillus. The lesions which he describes were almost invariably located below the level of the knees, were usually single, were of short duration and produced no constitutional disturbances.

A little time before the receipt of this report by Bruce we found a spirochete and a fusiform bacillus in an ulcerated area on the foot of a Filipino. This ulcer was thought to be due to yaws and smears from it were being stained for *Treponema pertenue.* No treponemata were found and no other organism except delicate spirochetes, ranging in length from 15 to 50 microms, and heavy fusiform bacilli, varying from 5 to 10 microns in length. We were at once struck by the resemblance of these organisms to those described as the cause of Vincent's angina. The fusiform bacilli were of the same size and showed the same barred stain-

*Report made to the Surgeon General, United States Army.

Digitized by Google

ing. Many of them were identical in shape with the bacilli of Vincent's angina, but on the average the ends did not seem quite as sharp as are those of Vincent's fusiform bacillus. They stained well with carbol-fuchsin and Giemsa's stain.

The spirochetes averaged rather longer than those seen in throat lesions and were extremely slender. They did not stain with cold carbol-fuchsin as readily as do the spiral organisms associated with Vincent's angina. They had from 6 to 12 shallow curves, but differed considerably among themselves as to the size and depth of the undulations.

Unfortunately this patient passed from observation before these organisms were found. Consequently no cultures were made and nothing is known of the subsequent history.

This case was of particular interest because for more than a year the Board has been making smear examinations of all available ulcers in the throat and mouth to determine the prevalence in the Islands of the so-called Vincent's angina. We are not yet ready to report on this subject, but up to date 88 unselected cases of oral and faucial ulcers have been examined and in 27 (30 per cent) we have found these sympiotic spirochetes and fusiform bacilli present in great numbers and as the preponderating bacterial elements. In many other cases they have been present in small numbers. We are in doubt as to whether these organisms are the cause of the lesions either in ulcers of the throat or in the ulcers of the leg. in our case and in those described by Bruce.

The occurrence of fusiform bacilli and spirochetes in ulcers of the skin is not an original observation on the part of Bruce since Vincent, Smith and Peil, Patton and other observers have reported them from various parts of the Tropics (5).

SKIN DISEASES AMONG THE FILIPINOS IN MANILA.

During more than two years members of the Board have had charge of a dermatological clinic in Manila. As the degree of benefit likely to be derived from this clinic in the future seems out of proportion to the amount of time it consumes we have decided to give up the charge of this work. Therefore, for this quarterly report, all of the cases which have come under the care of the Board for the entire period have been classified and the results

Digitized by Google

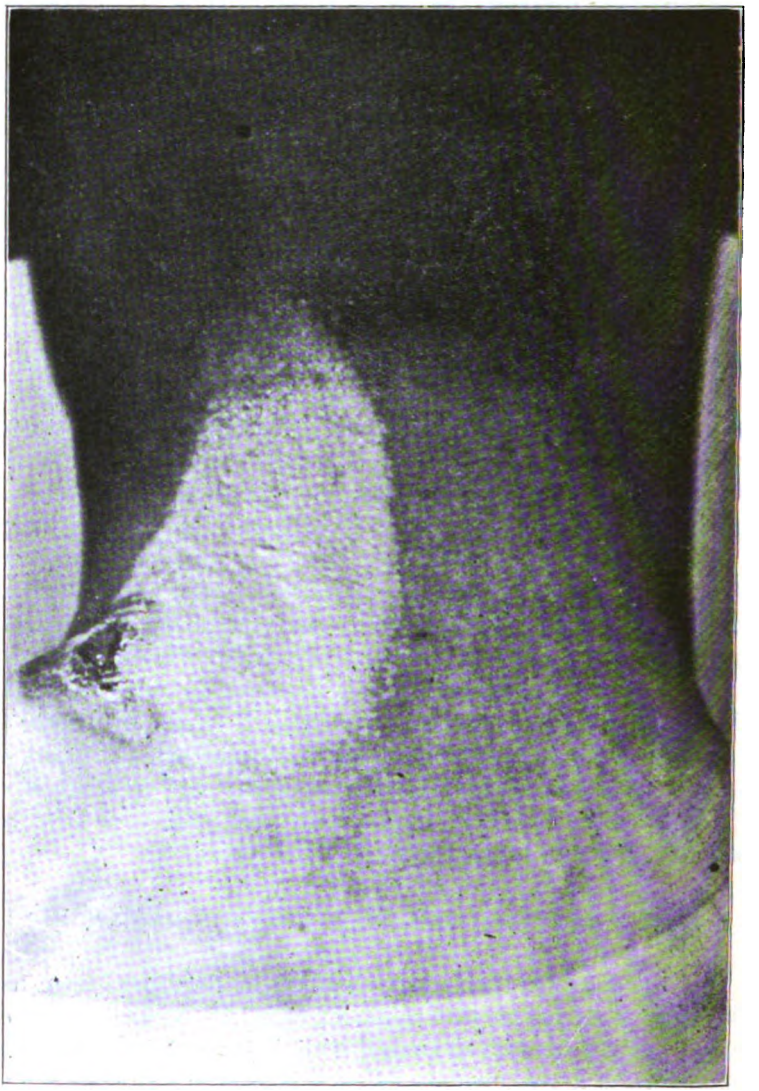


FIGURE 1.

Digitized by Google

are shown in the following table. The patients belonged to the poorer classes and for the most part lived in Manila.

Table of Skin Diseases in Manila.

Disease.	Number.	Per cent.	Disease	Number.	Per cent.
Dermatomycoses.			Syphilis, tertiary	1	.19
Blastomycosis	11	2.07	Mites, unclassified	3	.56
Tinea circinata	171	32.14	Scabies	25	4.70
Tinea versicolor	14	2.63	Yaws	11	2.07
Tinea nigra	2	.38	*General skin diseases.*		
Tinea sycosis	2	.38	Pemphigus	4	.75
Tinea tonsurans	1	.19	Pompholyx	11	2.07
Tinea favus	4	.75	Psoriasis	6	1.13
Tinea imbricata	4	.75	Herpes	5	.94
Undetermined	11	2.07	Herpes zoster	7	1.32
Infections, probably bacterial.			Lichen	1	.19
Acne vulgaris	20	3.76	Seborrhoea	3	.56
Impetigo simplex	14	2.63	Dermatitis venenata	2	.38
Impetigo contagiosa	10	1.88	Gangrene, moist	1	.19
Dermatitis	46	8.65	Eczema exfoliatum	17	3.20
Dermatitis, vesicular	3	.56	Eczema sclerosum	24	4.51
Dermatitis, papular	8	1.50	Eczema erythematosum	3	.56
Cellulitis	1	.19	Eczema papulosum	3	.56
Infected wound	1	.19	Urticaria	1	.19
Furunculosis	3	.56	Vitiligo	1	.19
Folliculitis, postular	4	.75	Prurigo	3	.56
Leprosy	1	.19	Blisters	1	.19
Diseases due to protozoa and higher animal parsites.			Alopecia areata	1	.19
			Hyperkeratosis	10	1.88
Ground itch	1	.19	Undetermined	46	8.65
Syphilis, secondary	10	1.88			
Grand total				532	

During the medical survey carried out by the Bureau of Science at Taytay, a typical Filipino town of 6,000 population, Nichols of this Board (1) saw in 500 unselected natives 192 persons suffering from skin affections, an incidence of 38.4 per cent. He found that *Tinea versicolor* made up about 25 per cent of the total skin disease. This condition was seen infrequently (2.6 per cent) in our clinic in Manila, but this infrequency may be due to the fact that the infection is so mild that few persons affected with it apply for treatment. *Tinea circinata* was present in only 3 per cent of the cases of skin disease in Taytay, whereas it constituted 32 per cent of the admissions in our series in Manila. The vegetable parasites other than bacteria were responsible for 41 per cent of the Manila admissions. This Board in the past has made reports on yaws, elephantiasis, blastomycosis and pompholyx,

Digitized by Google

a part of the material for these articles having been derived from this clinic. During the past year members of the Board have seen a type of skin infection which we believe to be caused by a mite and which apparently is not uncommon. We have found the parasite in six cases, one being an army officer, two being children of officers, and three being natives. Apparently the parasite was the only causative factor except in one native, where it was found in conjunction with the trichophyton of *tinea circinata.*

The lesion consists of small discrete deep-red papules, easily perceptible by touch, and appearing on an uninflamed base. In several cases the lesion appeared in patches extending vertically over the sternum and posteriorly between the scapulae in a triangular area with the base upwards. On the children it was more general and irregularly distributed. In certain instances the summit of the individual papule was indented and of a deeper red, suggesting the probability of burrowing.

Despite our efforts we have been unable to secure the mite in perfect form. It is of delicate structure and it occurs in small numbers since only one or two are found at one time from the lesion and the scraping necessary to cover a considerable skin area results in breaking off the terminal segments of the legs. In one case a portion of skin was excised and sectioned without finding burrows, eggs or parasites. Our measurement of this mite average .39 mm. in length and .15 mm. in breadth. Although the mite has not been frequently found, we have seen many cases which resemble this type of infection.

Balsam of Peru has been used with success in treatment.

These mites were sent by Dr. Banks of the Bureau of Science to Europe for identification as to species. Report has not yet been received.

A condition, which we have classed as eczema sclerosum, has been found of very common occurrence among the natives, constituting 4.5 per cent of our admissions. The lesions were itching and burning, deeply seated, indurated areas on the palmar and plantar surfaces. The condition is closely allied and perhaps identical with the cases diagnosed in the table as hyperkeratosis and apparently is not related to occupation or modified by age, the condition often existing in young adults.

Digitized by Google

FIGURE 2.

FIGURE 3.

Digitized by Google

Among the most striking cases seen by us recently were those patients presenting areas lighter in color than the normal skin. Manson and Jackson have both called attention to the fact that *tinea versicolor* in dark skinned natives manifests itself by white or fawn colored areas. This fact does not seem to be universally recognized and we have encountered several cases where no suspicion of the true nature of the disease had been entertained by the attendant. In all of these patients the *Microsporon furfur* was easily demonstrated in the light colored areas after macerating the scales in a 10 per cent solution of potassium hydrate.

One case of particular interest is that of a white man belonging to the hospital corps whose lesion is shown in Figure No. 1. The white area, 10 cm. × 5 cm., has existed without material change in size for 18 months. Its surface is smooth, the skin is not altered in thickness and there is neither itching nor loss of sensation. About fifteen months ago it is reported that there was found a large spored fungus in the scrapings, possibly *Monilia montoyai*. Since that date many examinations have failed to show any parasite. Various kinds of anti-parasitic treatment have produced no results.

The dark patch at the lower left hand corner of the light area in the photograph is a small ulceration which has nothing to do with the disease having been caused by the too vigorous application of a softening fluid used in removing scales for examination.

A very striking instance of leucoderma is shown in Figures Nos. 2 and 3. The skin over the affected areas was entirely normal except for the loss of pigment which left it snowy white. Scrapings were negative for fungi and specimens from various regions, including the nasal septum, showed no lepra bacilli. This case was classed as vitiligo and was perhaps due to a trophoneurosis, though the exact etiology of the condition is unknown.

BERI-BERI.

In our last quarterly report and in a special report forwarded under date of March 11, 1911, we reported the disappearance of beri-beri from the Philippine Scouts, following a change in diet, inaugurated about January, 1910, which reduced the amount of

Digitized by Google

rice consumed and added a legumen. From June to December, 1910, inclusive, there were only four cases of beri-beri in the Division. We stated that the disappearance of the disease took place *before* the Filipino No. 2 rice (undermilled) was put into use. As a result of another ration change directed by the War Department, November 7, 1910, the Scouts have been now subsisted for several months on the same ration that they were using in 1908 and 1909 (when there was an average of 50 admissions per month for beri-beri) except that an undermilled rice has been used instead of the polished Saigon rice formerly issued. Under these conditions beri-beri has still been absent, there having been but one case in January, none in February and none in March (for March six Scout Companies not heard from). The reduction in the incidence of the disease during the period is probably to be attributed to the use of undermilled in place of highly milled rice, but more time must be allowed to elapse before it will be safe to draw final conclusions.

As stated in our special report of Feb. 7th, 1911, the return to the old ration, made on November 7, 1910, contemplated the issue of polished rice. Polished rice did not, however, go into use because of the large amount of Filipino No. 2, which the Subsistence Department had on hand. The Board at once recommended that undermilled rice of the best grade be substituted for choice Saigon (polished) rice in the Filipino ration. This recommendation was favorably acted on by all authorities here and was approved by the War Department in the following cablegram:

WASHINGTON, *February* 27, 1911.

BELL, *Manila.*

With reference to your indorsement, 4th January, the Secretary of War authorizes purchase for Philippine Scouts and Filipino laborers as may be entitled to rations, rice, good quality, well cleaned, medium milled, with pericarp left on; price this rice will be used in computing value this component Filipino ration on ration and savings account. Papers will be sent by mail. AINSWORTH.

The first purchases of rice under this authority were made about March 10, 1911, the samples having been approved by the Board. The grain is termed by the Subsistence Department "Rice M. M.," the letters "M. M." signifying "medium milled."

Digitized by Google

The sample selected was an undermilled article with white pericarp and of a much better grade than the "Filipino No. 2" rice prescribed by G. O. 24, W. D., Feb. 12, 1910. As stated in our previous reports, the Filipino No. 2 rice excited much dissatisfaction among the Scouts because of its inferior quality, the presence of many unhusked kernels and the unsightly appearance of the red pericarp on the grains. It is believed that the new "M. M." rice will be received favorably by the Filipino troops.

FURTHER STUDIES ON POLYNEURITIS GALLINARUM.

In our last quarterly report and in a special report forwarded under date of March 11, 1911, we dealt with an extensive series of observations carried out with fowls fed on various kinds of rice. One of the conclusions reached during this work was that fowls fed on polished rice developed multiple neuritis and that this disease could not be prevented by adding to the polished rice phosphorus in the form of phosphoric acid or phytin, potassium chloride, or a combination of potassium chloride and phosphoric acid.

It is well known that the giving of rice polishings (tiqui tiqui) to fowls subsisting on polished rice will prevent the development of nerve degeneration. Aron (2) considered that phytin might be the neuritis-preventing element in the rice polishings. Phytin is dissolved from *tiqui tiqui* by 0.3 per cent of hydrochloric acid and is precipitated from this solution by 95 per cent alcohol. Subsequent to the completion of our series of experiments referred to above, we received the report of some new work by Fraser and Stanton (3). These observers found, after extracting rice polishings with 0.3 per cent hydrochloric acid, precipitating the phytin with alcohol and removing it by filtration, that the filtrate contained the neuritis-preventing principle and that fowls subsisting on polished rice combined with this filtrate would remain well. The filtrate contained only 15 per cent of the phosphorus originally present in the *tiqui tiqui*.

During the last quarter we have undertaken a new series of experiments on fowls. We have confirmed the above findings of Fraser and Stanton. Three fowls fed on polished rice combined with this filtrate were well after 56 days. One then died of an

Digitized by Google

acute respiratory disease and the remaining two continued well after 72 days. Three control fowls on polished rice alone developed neuritis in 17, 29 and 42 days, respectively, and in previous experiments with over 35 fowls it has been the rule that neuritis came on in 30 days or less.

We found on analysis that the filtrate used with the above three fowls contained, among other things, phosphorus, potassium and magnesium. To determine if certain salts of the last two elements, when added to polished rice, would prevent polyneuritis gallinarum we conducted an experiment with four groups fed on polished rice, each group consisting of four fowls. The first group received with the rice a daily dose of potassium carbonate, the second potassium citrate, the third potassium phosphate, and the fourth magnesium phosphate. These experiments were entirely negative. In each group two or more fowls had developed neuritis by the end of 25 days, at which period the experiment was concluded.

We have now underway several series of experiments in which we are using a variety of extracts of *tiqui tiqui*. These were undertaken with a view to narrowing the limits within which the neuritis-preventing element must be sought for. The work has not yet advanced sufficiently to warrant any report.

EXPERIMENTS AS TO THE INFLUENCE OF IPECAC ON AMOEBAE.

During the last quarter the Board has carried out some experiments on the effects of ipecac on the growth of amoebae. The work on this subject is not yet completed, but a preliminary report thereon was published in the *Bulletin of the Manila Medical Society* for March, 1911.

It has been found that ipecac is a powerful amoebacide and that the preparation of the fluid extract, which was weakest in alkaloids, would kill amoebae in dilutions of 1-10,000 while others, containing larger percentages of alkaloids, were fatal in dilutions as high as 1-50,000. Emetin was found to be strongly amoebacidal, killing the organisms in dilutions of 1-100,000. It is probable that the power of any given specimen of ipecac to kill amoebae is directly dependent upon the proportion of emetin contained, but this cannot be positively proved until we obtain the results of cer-

Digitized by Google

tain analyses for determining the relative proportions in the specimens of the two alkaloids, emetin and cephaelin. Analysis for total alkaloids in several samples of fluid extract of ipecac on the market showed wide variations, ranging from 0.885 per cent to 1.80 per cent, while the U. S. Pharmacopeia requires 1.75 per cent.

The amoebae experimented with were of two strains, one isolated from the stool of a normal man and one from tap water. It is not considered that either were *Entamoeba dysenteriae,* which, in the opinion of the Board, has never yet been cultivated. It would, of course, have been more conclusive if a pathogenic amoeba could have been used in these experiments. However, if we may be allowed to draw conclusions from the effect of the drugs on various species of other protozoal organisms, it seems reasonable to assume provisionally that a drug, like ipecac, which is effective against the non-pathogenic amoebae, is likely to be inimical to the development of the pathogenic variety or varieties.

Experiments were also carried out using ipecac in 2 per cent solution with several strains of dysentery bacilli. It was found that this strong solution (2 per cent) had an inhibitory effect on the Shiga and the Flexner types, more marked on the former, but that this action was by no means specific since ipecac inhibited the growth of other bacteria, such as typhoid, paratyphoid and staphylococcus, while other fluid extracts, such as hydrastis and digitalis, were quite as powerful as ipecac in inhibiting the growth of *Bacillus dysenteriae.*

From the experiments it was concluded that ipecac did no harm and probably no good in bacillary dysentery and that in amoebic dysentery the drug was likely to be of *great benefit* by acting directly against the amoebae on the exposed surfaces of the bowel and indirectly, after absorption into the blood stream, on the amoebae imbedded in the tissues surrounding the dysenteric ulcers. In treatment it is important to obtain a drug shown by analysis to contain the proper percentage of alkaloid, especially emetin. When an analysis cannot be obtained there is reason to think that the Brazil root is more reliable, since in this variety emetin is the dominant alkaloid, while in the Columbian root cephaelin predominates.

Digitized by Google

It is quite probable that the ill success which has been obtained by many medical officers with the ipecac treatment of amoebic dysentery may have resulted from the use of a drug which either had deteriorated or had contained originally an insufficient proportion of emetin.

ROUTINE TYPHOID FEVER OBSERVATIONS.

The following table shows the routine typhoid examinations which have been made during the quarter:

Results.	Widal tests.	Cultures from stools.	Cultures from urines.	Cultures from blood.
Positive	17	1	2	1
Negative	32	66	54	27
Total	49	67	56	28

The 49 serum reactions were performed on the blood of 35 persons. The 17 positive Widal reactions were made on the blood of 15 patients of whom 9 were Americans and 6 Filipinos. The 67 stool cultures were made on 30 individuals, the 56 urine cultures on 28 individuals, and the 28 blood cultures on 27 individuals. One of the blood specimens, which was negative on serum test for typhoid, was positive for paratyphoid.

TYPHOID VACCINE.

When the manufacture of typhoid vaccine in the Division was begun the work was put under the charge of Lieut. John R. Barber, then stationed at Corregidor Island. When Lieut. Barber reported for duty with the Board, the apparatus for the preparation of vaccine was transferred to the Board. It is the intention that the manufacture of typhoid vaccine shall hereafter be conducted by the Board and a suitable dust proof room to be used exclusively for this purpose has been constructed on one side of the laboratory.

Digitized by Google

EPIDEMIC OF DYSENTERY AT ORMOC, LEYTE.

Information having been received that a very fatal type of intestinal disease was prevailing at and around the town of Ormoc, a member of the Board (Barber) was ordered to that point to investigate the matter. Through the courtesy of the Bureau of Health we were furnished every opportunity to study the epidemic, but, unfortunately, by the time we were able to reach Ormoc the disease had nearly disappeared and the results of our work were disappointing.

Investigation was begun on February 24th, and completed, as far as relates to work in Ormoc, by March 1st. During this time the history of the epidemic was obtained from official and personal reports and two cases, the only ones remaining, were studied clinically, while cultures were taken from each for further examination.

Ormoc, including its barrios, is reported by the Bureau of Health to have a population of about 16,000. Local estimates as to the population of this town itself varied from 1,500 to 3,000. The best idea of the nature and extent of the epidemic was obtained from Captain J. D. Heysinger, Medical Corps, Surgeon at the adjacent post of Camp Downes. As near as could be made out, the disease appeared first about October 15th. Reports from the town of Bay Bay, situated about twenty-five miles south of Ormoc, leave doubt as to the point of origin. The cases began to appear in both places at about the same time. As the official records in Ormoc were not begun until November 13, while there were none at all to be had from Bay Bay, accurate information on this point is not available. The sanitary records at Ormoc were poorly kept, as evidenced by the fact that several deaths known to Captain Heysinger among families attended by him, were not reported. From November 13th to February 15th, there were ninety-five deaths recorded in Ormoc as due to intestinal complaints, of which eight were adults, the rest children under the age of ten. This list includes eight deaths from the Barrio of Albuera, which lies between Ormoc and Bay Bay, but these latter cases all occurred between December 5th and 30th; evidently the reports from Albuera are not obtained regularly. At Puerto Bello, a small town across the bay from Ormoc, it was found that the disease had appeared about November 1st, and careful inquiry elicited a death report of from thirty to fifty persons nearly all young children. One sick child was found there, while it was said that there were many more cases among the people living further back in the hills. At Merida, a town a few miles down the coast from Puerto Bello, the school teacher reported that at least fifty deaths had occurred, mostly among the little boys at school, and that all had occurred since November 1st, two weeks after the disease had appeared at Ormoc. The health officer at Ormoc, Dr. Carlos Victorino, to whose courtesy we are indebted for much

Digitized by Google

information, stated that there were many cases among the people living in the foothills back of Ormoc; we saw one little coffin there which had been brought in from the hills.

The greatest number of deaths reported in Ormoc for one day was eight on January 21st, while there were several days in January when four or five were reported. It is safe to say that in the towns of Ormoc and Bay Bay, together with the barrios of Albuera, Puerto Bello and Merida, there were at least three hundred deaths from dysentery during the period from October 15th to February 28th. Bay Bay was not visited since Dr. Victorino received telegraphic information that there was no more dysentery there. Lieut. Leonard, of the Ninth Infantry, who visited Bay Bay during the period of our investigation, states that the epidemic there was at its worst in October and that it was checked, largely at least, after the great typhoon of October 31, 1910, which destroyed that town and flooded all the ground that it stands on.

To sum up, the epidemic began in Ormoc and Bay Bay at about the same time, possibly first in Bay Bay, but was well established in both places by the middle of October. It then began to spread, and appeared in Puerto Bello and Merida about November 1st. Later it began to extend to the little barrios and isolated houses in the hill country back of the larger villages. The date of its appearance in Albuera was not ascertained. Transmission was probably by contact for the most part since the cases occurred at regular intervals, and not in large groups, while very many of the deaths reported were in children under three years of age, too young to eat indiscriminately outside their own homes. A striking example of the probable method of transmission was shown at Puerto Bello, where a four-year-old boy with dysentery was found in a small house where there were five or six other young children. We saw three or four deposits of intestinal mucous discharge lying on the floor and on the ground outside of the house, affording ideal opportunities for contact infection, and also a great attraction to the numerous flies that swarmed about. Any general infection of the water supply can probably be acquitted of complicity since the supplies are so varied in all these towns, being derived from shallow wells and several small streams. There was no sudden wide-spread flare up, suggesting water borne infection, in any place visited.

Clinically, the most striking feature was the tremendous mortality. *Not a convalescent was found or reported, and only one living case of more than a week's standing was seen.* The inci-

Digitized by Google

dence of the disease among children under six years old was very great. One could drive through the town at a time when all the remaining children would be on the streets and see no more than twenty or thirty small ones.

Only two cases were seen by us and these two were both little girls, one two years old, the other three. The older one (Carmen Tan) had been sick for a week, and showed the characteristic features, which, according to Captain Heysinger, mark the disease, namely, a severe anemia, oedema of the lower extremities, and only moderately frequent stools, which were at the time of observation no longer of a bloody or mucus nature. Her appetite was good, and her nutrition fair, in spite of the anemia. There was no fever. The urine had never shown albumin or casts, and the one specimen of blood examined showed only the findings of severe secondary anemia, with no marked change in the leucocytes, and no nucleated red cells. Hemoglobin was not determined, but was certainly very low, as judged by the stained specimen.

The other baby (Salud Martinez) had been sick for only two days when first observed, and showed the characteristic findings of an acute case, except that there was not much toxemia.

There were fairly numerous stools, but not much pain or tenesmus and little prostration. The stools were of pure mucus, usually blood-stained, but without a very large admixture of blood. Temperature was as high as 100° F. the first day, thereafter normal. Both these children survived during the time of observation, and both showed improvement.

The usual course of the disease, in the fatal cases, was rapid and overwhelming. The children generally were fairly well and comfortable the first day, with only a moderate number of stools and with but little pain. They were commonly only a little worse the second day, and usually in collapse on the third. Death came within three or four days at the latest, there being only one case in Captain Heysinger's experience, previous to the one quoted above, in which the child lasted more than a week, and this one ultimately died with severe anemia, oedema of face and limbs, and heart failure. The prominent and striking feature in nearly all the cases was the toxemia which, with the mildness of the intestinal symptoms, was very suggestive of the Shiga type of dysentery. Fever was not always present, and usually subsided with the onset of collapse. An average maximum would be 101° F.

Digitized by Google

Cultures were made from both the cases seen by us, smears from the intestinal discharge being planted on Endo's medium. A pure culture of a non-acid producing organism was obtained from the Martinez case, and a similar organism was found in the Tan case, together with a few colonies of another non-acid producer. There was a noticeable lack of the ordinary red colon colonies, the plates from the Martinez case showing no red colonies, and the Tan case only a few. Further study of these cultures was made in the laboratory at Manila and the first organism, the one found in pure culture in the bloody mucus from the Martinez case, was shown to be an atypical colon, producing acid, coagulation, and gas on Hiss' medium with dextrose, mannite, maltose, and saccharose, while with lactose there was no acid production during the first three days, then a gradual production of acid, coagulation or gas. A blue ring was formed at the top of the red tubes, after six days. Indol was produced on Dunham's solution in two days, but not more than a trace, even in five or six days. Motility was not observed in a one day broth culture, nor in any culture in Dunham's solution. There was no demonstrable capsule, and the bacillus itself was seen to be a short, rounded rod, a little shorter and thicker than a typhoid bacillus. It was Gram negative. This organism corresponded with Bowman's bacillus except for its lack of motility (4).

The other organism obtained proved to be a long bacillus, about twice the length of the average typhoid bacillus and a little thicker. It was Gram negative, and had a thin, but clearly visible capsule when grown on serum water media and stained by Hiss' gentian-violet-copper-sulphate method. Indol was not demonstrable in six days in Dunham's solution and no motility could be seen in a one day broth culture. On the serum sugar media acidity without coagulation or gas was produced on dextrose, mannite, maltose and saccharose in one day, but not on lactose. Saccharose coagulated in three days, but no other sugar became solid after six days. Lactose showed a slight acidity in six days, but never enough to give definitely pink tinge to the litmus. All the other sugars showed a maximum of acidity in three days, and then gradually turned toward the alkaline, though, not losing the pink entirely. This bacillus does not correspond to any pathogenic organism with which we are acquainted.

We do not believe that the atypical colon organism was the cause of the disease in these cases. As the epidemic had subsided, stools could not be obtained from any other cases. The blood for serum test, obtained from these two patients, became infected before examination and was useless. To determine if typhoid fever had recently prevailed in the town a serum reaction with *Bacillus typhosus* was performed on the blood of 14 persons, all but one being children under 15 years of age. Three were positive in 1-20 dilution, one of these three being positive in 1-50 dilution, and the other two negative. All three of the positive is yet ready for report.

Digitized by Google

cases were children between 10 and 12 and there was no history of typhoid fever obtainable in any.

The stools of the two cases recorded above as well as feces from several other patients were examined for amoebae by Lieut. McDiarmid and ourselves with negative results.

We believe that the disease which visited this section of Leyte was a very virulent form of bacillary dysentery and that it was almost entirely confined to the period of childhood and was particularly characterized by an extremely high mortality.

"FEVERS OF UNDETERMINED CAUSATION."

Through the courtesy of Captain Craig R. Snyder, the Board has had the opportunity to study three cases of fever which, from the clinical side, would have to be diagnosed as fever of undetermined causation. The laboratory examinations throw some interesting side lights on the condition, but the results are by no means conclusive though somewhat suggestive.

The first case reported is of importance in the consideration of the role that the *Bacillus typhosus* may play in the causation of the undetermined fevers. While many of the cases in the Parang epidemic of 1909-10 were very light, so far we do not believe that typhoid fever generally prevails in a light form, at least among our troops from which, of course, we mainly draw our material for observations. It is easy to assume that many of our undetermined fevers, especially among natives, are light cases of typhoid, but up to the present time we have been unable to obtain any conclusive evidence that such is the case. Most of our Filipino cases of typhoid fever at the Division Hospital have been marked and typical. It is not at all unlikely, however, that in native barrios mild typhoid may frequently be found, the disease only at times becoming epidemic and severe and thus drawing attention to its existence.

The patient was "Z. H. J.," 36 years old, white civilian employee, Q. M. D., admitted to hospital December 8, 1910. His family history was unimportant. He never had had typhoid fever previously nor dysentery. Many years before he had an attack of malarial fever with subsequent recurrences. He had been having a fever, accompanied by headache, for about one week prior to admission. He had had no chills, myalgia or arthralgia, He had been taking quinine.

Digitized by Google

Outside of a barely palpable spleen nothing was noted in his physical examination.

He was fifteen days in hospital, during which time he had eight days of continued fever. The clinical symptoms were very light. There was moderate constipation present. The laboratory findings were as follows: Seven examinations for malaria were negative; two examinations of stools were negative for parasites or ova; four white blood counts showed variations between 9,250 and 22,500; the differential showed variations as follows on four different occasions; polynuclears between 55 per cent and 69 per cent; lymphocytes between 26 per cent and 42 per cent; other cells unimportant variations. On one occasion a slight amount of albumin was noted. On December 14th, a Widal was positive with *Bacillus typhosus*, 1-50 dilution. Later repeated serum reactions on *Bacillus typhosus* and *Bacillus paratyphosus "A"* were negative. Two blood cultures were negative and two cultural determinations each of stool and urine failed to show any typhoid or paratyphoid organisms.

Unfortunately a Wassermann reaction was not performed to rule out the possibility of syphilitic fever.

We are unable to say definitely whether this fever was a light case of typhoid, with a quick disappearance of the agglutinins, or whether it was an infection of some other nature.

The second case is of particular interest because an immunizing dose of typhoid vaccine had been administered in 1910. Now that typhoid vaccination is coming into extended use it will be of value to study all cases of obscure fever arising in the vaccinated individuals and to consider the possibility of a modified typhoid fever. We have thus far received the blood from five men known to have been vaccinated and who were suffering from fevers suspected of being typhoid. All gave positive Widals, but these reactions were, of course, of no value in making a diagnosis. In one of these cases (Jackson) only two doses of vaccine had been administered and the disease manifested itself shortly after the second dose. The stool was positive for *Bacillus typhosus*. In the other four cases there were no bacteriological findings to support a diagnosis of enteric fever, and in the case reported "C. P." we are satisfied that the disease was not typhoid.

"C. P.," Pvt. 1st class., Hospital Corps, admitted to Division Hospital December 31, 1910, with the transfer slip diagnosis of malarial fever, double tertian. The records available at the Division Hospital would indicate that the history prior to transfer was incomplete and gives only the following information:

Digitized by Google

Arrived in P. I., August 13, 1910. Never had malarial fever.

Present illness—Felt tired out. Had slight fever and no appetite.

Condition on admission—Entire body felt sore and limbs ached.

Loss of appetite. Fever continued with evening rise of one to one and one-half degrees. Loss in weight about thirty-five pounds. No cough.

Microscopical examination of the blood is said to have shown malarial parasites, tertian.

No date of entrance to sick report. No statement of treatment given.

From the records made at the Division Hospital we obtained the following:

Never had typhoid fever *and was vaccinated against typhoid in* 1910.

Never had dysentery or malarial fever previously. Denies all venereal infection.

Drinks gin and whiskey. Had been taking about six drinks daily before onset of present illness.

Has not been feeling well during the last two months. Appetite not good. Felt weak and had no inclination for muscular exertion. Came on sick report November 15th. He had an afternoon temperature; no rigors. Has had a slight cough recently and has lost weight. Has had no diarrhœa. Has had attacks of vomiting but believes these to be due to quinine which has been given by mouth and hypodermatically in 1.0 to 2.0 gram doses daily during last month without influence on the fever.

Examination showed that soldier was tall and obese. No glandular enlargements. No skin eruption. Heart and lungs negative. Liver and spleen not enlarged. No nodes palpable on bones.

Blood cultures—January 7th and 11th both negative with particular reference to typhoid and Malta fever.

Stool and urine cultures for typhoid fever—January 8th and 9th both negative.

Serum reaction with Bacillus typhosus—January 7th and 8th, both *positive,* probably due to typhoid vaccination.

Blood examinations were made as follows:

December 31st, red blood cells, 3,440,000; white blood cells, 12,500; Differential: Polynuclears, 72 per cent; small lymphocytes, 26 per cent; large lymphocytes, 1 per cent; eosinophiles, 1 per cent.

January 6th, white blood cells, 14,200; Differential: Polynuclears, 67 per cent; small lymphocytes, 21 per cent; large lymphocytes, 11 per cent; eosinophiles, 1 per cent.

January 7th, white blood cells, 11,400; Differential: Polynuclears, 60 per cent; small lymphocytes, 22 per cent; large lymphocytes, 17 per cent; eosinophiles, 1 per cent.

Numerous examinations of sputum and urine failed to show pathologic conditions and no malarial parasites were found after numerous examinations of the blood.

On January 11th the *Wassermann serum reaction was positive.*

We believe that this case ran a mild fever for about two months; that there was a moderate loss in weight and strength

Digitized by Google

without sufficient clinical signs of symptoms to make a diagnosis; that there was good reason to consider that the disease was not malarial fever; and that there was no reason to think that it was typhoid fever, although the occurrence of a modified typhoid must in similar cases always be borne in mind. The course of the illness was such that the diagnosis narrowed down to tuberculosis or syphilis and the positive Wassermann reaction clinched the diagnosis in favor of the syphilitic nature of the infection.

The subsequent history under mercurial medication confirmed our positive serum finding. After three days the temperature fell to normal and remained so for the two weeks following. The chart prior to this fall resembles that given in *Osler's Modern Medicine* (Vol. III, page 461), as characteristic of syphilitic fever.

Asburn and Craig had occasion to study several obscure cases of an eruptive fever, which was decided by them to be syphilitic in nature. These cases were recorded in the quarterly report of this Board for June 30, 1906, and reported in THE MILITARY SURGEON for July, 1907, page 43, and August, 1907, page 141.

The third case was a native who entered hospital with history of constipation, headache and fever for one week. The fever continued for five days after admission. There was nothing definite on which to base a diagnosis. Urine was normal; blood negative for malaria and for *Bacillus typhosus;* white count was 5,700 per cubic millimeter. The Widal reaction was negative. Feces and urine each examined on two occasions, were negative for *Bacillus typhosus and paratyphosus,* but from one stool specimen there was isolated a dysentery bacillus of the Hiss-Russell type. The patient gave no history of dysentery. It is probable that he was a dysentery bacillus carrier and it is very doubtful if the organism had anything to do with his febrile movement.

EXPERIMENTS WITH HEADGEAR OF VARYING COLORS.

In the quarterly report of the Board for September, 1910, details were given of some experiments which showed that uniforms of the new olive drab cotton material and helmets covered with that material were much warmer than similar articles of a khaki color, the reason being that the darker shade of the olive drab

Digitized by Google

cloth caused it to absorb a greater amount of solar heat rays. At the request of Colonel Hodgson, President of the Helmet Board, we have recently carried out some supplementary experiments, using a white helmet, a khaki helmet, an olive drab helmet and a campaign hat. The method of conducting these experiments was similar to that described in the previous report and the details of the observation are given in the appended tables.

It should be noted that the campaign hat furnished the Board was the kind which does not have the corrugated ventilating hat band and that the only aperture in it is a "star" of small holes punched in each side. If a campaign hat more freely ventilated were used the temperatures in it would probably not range so high as those shown in the table, especially on a breezy day, but would probably always be higher than those in an olive drab helmet because the color of the campaign hat is of a darker shade than the olive drab and consequently absorbs more heat.

The tables bring out very clearly the same point emphasized in our previous report on the subject, viz., the great importance of color in uniform materials. The helmets were exactly the same except for color, and it will be seen from the averages in the table that the temperature was always much lower in the white helmet than in the khaki and considerably less in the khaki than in the olive drab. The campaign hat was a great deal hotter than the olive drab helmet.

The later observations in each of the experiments (after the headgear had been exposed for at least 15 minutes) bring out the difference very strongly and demonstrate the great advantage, as regards coolness, of the white covered helmet.

The average for all the observations in all four experiments was as follows:

Olive drab Helmet.	Khaki Helmet.	White Helmet.	Campaign Hat.
40.42° C.	38.38° C.	35.36° C.	46.60° C.

It will be noted that between the white helmet and the olive drab helmet there is a difference of more than 5° C. or 9° F. Another important fact is that inside the olive drab and the khaki helmets after a few minutes' exposure to the sun the temperature is always above the normal body temperature (37.0° C.) and, therefore, heat elimination is constantly required.

Digitized by Google

Inside the white helmet the temperature never rose over 0.1° C. above body temperature, was with one exception always below body temperature, and for all the observations averaged 2.16° C. (3.9° F.) below normal body temperature. Therefore, the white helmet did not add any burden of heat to the body.

These experiments confirm us in the opinion expressed in our previous report that olive drab is not a suitable color for either garments or headgear for garrison use in the tropics.

The general use of white garments as a uniform, however desirable it may be from heat reflection point of view, is for many reasons almost impracticable and khaki of a shade not darker than our present issue is a very good substitute for white material. For helmets there seems to us to be no valid reason why white should not be used. A white helmet can easily be kept looking well by the use of blanco and its appearance is not unattractive when combined with a uniform of khaki, olive drab or any other color. If it be planned to use a helmet in actual hostilities a khaki or live drab dressing can be provided with which to promptly change the cover of the helmet from white to a less conspicuous color.

For the above reasons the Board strongly recommends that any helmet which is adopted be covered with white material in place of either khaki or olive drab.

It was recently observed by the Board that the French troops in Indo-China generally wore a white helmet, and it its believed that the English soldiers do in India.

The importance of considering the heat absorbing quality of a uniform material is emphasized by the work reported at the recent meeting of the Philippine Islands Medical Association by Freer and Aron of the Bureau of Science. Their observations go to show that the injurious influences of tropical climates are probably due not to the short wave-length actinic or ultra-violet rays of the solar spectrum, but to the long wave-length heat rays. If, however, it is desired to give protection against a possible influence of actinic rays this can be accomplished by a black lining in the helmet. Under any circumstances the brim should have a lining of dark-blue or green, as this is restful to the eyes.

These experiments were made solely for the purpose of determining the influence of color on headgear and not with a view to advocating the adoption of a helmet for use in the Philippines. The Board at the present time is divided in opinion as to the desirability of the helmet for tropical wear, one member favoring it, one strongly opposing it and one being undecided.

Digitized by Google

PHILIPPINE ISLANDS MEDICAL ASSOCIATION.

This Association held its eighth annual meeting in Manila February 22nd, 23rd, and 24th in the recently opened building of the Philippine Medical School. Papers were presented before the society by members of this Board as follows:

The Eradication of Beri-beri from the Philippine Native Scouts by Means of Simple Changes in their Dietary, by Major Weston P. Chamberlain.

A Study of the Influence of Rice Diet and of Inanition in the Production of Multiple Neuritis of Fowls and the Bearing thereof on the Etiology of Beri-beri, by Major Weston P. Chamberlain, Captain Horace D. Bloombergh, Captain Edwin D. Kilbourne.

Observations on the Wassermann Reaction in Syphilis, Leprosy and Yaws, by Captain Horace D. Bloombergh.

A Preliminary Account of Some Experiments Undertaken to Test the Efficacy of the Ipecac Treatment of Dysentery, by Captain Edward B. Vedder.

Among the interesting pathological specimens shown at the meeting were two cases of *Ascaris lumbricoides* infestation of the liver, presented by Dr. V. L. Andrews. There were numerous abscesses in each liver and the ducts and the abscess cavities were filled with round worms. Dr. E. R. Stitt reported on intestinal parasites among Filipinos in Cavite Province, where he found only 2 per cent of hookworm infections in 200 cases. He attributes this low rate to the fact that the Cavite peninsula is but little above sea level and the coarse sandy soil constantly impregnated with and frequently flooded by the salt water. Dr. Willets, at a recent meeting of the Manila Medical Society, reported that in two haciendas in the Cagayan valley he found 54.3 per cent of the inhabitants harboring hookworms. These two reports show the wide range in infection rate in the Islands depending on locality. Both these localities vary markedly from the *average* condition in the Philippines, where the infection rate was found by Willets to be 30 per cent in an examination of nearly 20,000 persons.

Dr. Victor G. Heiser, Director of Health, reported on practical experiences with unpolished rice in the Government institutions. It is his opinion that the use of this rice has caused the disappearance of beri-beri among the inmates.

Digitized by Google

Of special interest to the Board was a paper, by Dr. Hans Aron, based on animal experiments, which tend to show that the harmful influences attributed to a tropical climate are due to the heat rays, vibration of long-wave-length, and not to the short-wave-length or ultra-violet rays. Dr. Paul C. Freer, who, for several years has been working on the influence of the ultra-violet or actinic rays of the solar spectrum, read a paper on "Tropical Sunlight" in which he expressed the opinion that the influence of these rays had been greatly over-rated.

MISCELLANEOUS WORK.

During the quarter members of the Board have done a large amount of work pertaining to the observations which are going on throughout the Islands as to the influence of the climate on blonds and brunettes. We have also spent considerable time on the study of the blood and the blood-pressure in the tropics, on the effects of ultra-violet rays in the sterilization of water, especially with reference to amoebae and on the examination of emergency rations kept for three years in the Islands. None of these matters is yet ready for report.

REFERENCES.

(1) Nichols, H. J. Medical Survey of Taytay, Phil. Jour. of Scs., Section B, August, 1909, Vol. IV, No. 4, page 279.
(2) Aron, H. Phosphorus Starvation, Phil. Jour. of Scs., Section B, February, 1910, Vol. V, No. 1, page 81.
(3) Fraser, H., and Stanton, A. T. Etiology of Beriberi, Lancet, December 17, 1910, page 1755.
(4) Bowman, Fred B. Series of Cases of Tropical Infantile Dysentery, Phil. Jour. of Scs., Section B, January, 1908, Vol III, No. 1, page 31.
(5) Castellani, A., and Chalmers, A. J. Tropical Medicine (1910), page 1118.

Digitized by Google

Experiments on Heat Absorption of Different Colored Headgear.

Number of Experiment.	Conditions.	Atmospheric temperature in room. C.	Atmospheric temperature in sun. C.	Date.	Hour.	Duration of exposure. Minutes.	Temperature inside olive drab helmet. C.	Temperature inside khaki helmet. C.	Temperature inside white helmet. C.	Temperature inside campaign hat. C.	Remarks.
1	An olive drab, a khaki and a white helmet and campaign hat (Montana peaked) were exposed in the sun on a rack about 3 feet above the ground and free circulation of air beneath. Diaphragms were placed inside the hat bands. Thermometers were introduced inside helmets and hat through slits in the tops. No breeze. Fairly bright sun at first. Considerable cloudiness at intervals after first 10 minutes. Temperatures inside helmets and hat at start 30.4 C	30.5	34.4	Nov. 16 1910	A. M. 10.20	0	30.4	30.2	30.4	30.6	
						5	38.0	37.0	34.5	44.5	
						8	40.5	39.0	35.6	48.0	Sun covered at 9th minute.
						15	40.2	38.8	35.6	47.5	Sun reappeared 14th minute.
						25	45.2	42.4	37.2	53.5	Cloudy 16th to 25th minute.
						45	42.5	40.4	35.5	50.0	Cloudy 25th to 45th minute.
						70	46.8	43.8	37.6	52.5	Cloudy at times.
						85	41.5	39.0	35.0	49.0	Cloudy for last 5 minutes.
		31.5	34.4			120	42.2	39.8	35.1	45.6	Much cloudiness.
	Average (excluding initial temperatures).						42.11	40.02	35.76	48.82	
2	Same as Experiment 1. Helmets with vents turned way from breeze. Temperature inside helmets and hats at start 29.0 C.	29.0	33.5	Nov. 18 1910	A. M. 10.53	0	28.8	29.0	29.0	29.0	
						2	32.2	32.0	31.0	36.0	
						7	36.0	34.2	32.0	39.8	
						12	40.0	37.5	34.0	45.1	
						17	41.8	38.8	34.8	47.9	
	A hazy day.					27	43.2	40.0	35.8	50.0	
	Some fleecy clouds.					42	42.2	38.8	35.0	49.2	More breeze.
	A good breeze. From 40th minute on sun was brighter and breeze stronger.	30.0	34.0			47	41.1	38.6	35.0	49.4	Strong breeze.
						60	41.4	38.7	35.0	49.1	Good breeze.
						67	42.4	38.8	35.8	50.4	Less breeze. Sun brighter.
						77	40.0	37.5	34.6	47.4	Very strong breeze.
		30.1	33.6			97	40.4	37.8	34.6	47.0	Strong breeze.
	Average (excluding initial temperature).						40.06	37.52	34.33	46.48	

Digitized by Google

3	The helmets and campaign hat, with top rounded, were placed on the heads of 4 soldiers who sat in the sun for 42 minutes. All had dark brown hair. Thermometers in hat and helmets as in Experiment 1. Temperatures of men taken by mouth before and after experiment showed nothing of interest except that the man who wore the campaign hat had a rise of 0.9 F., which, however, may have been a coincidence. Temperature inside helmets and hat at start 31 C. Hot bright sun. No breeze at first, a little near end of experiment.	30.5 29.9	33.0 31.9	Feb. 28 1911	P. M. 2.23	0 5 9 12 17 25 32 42	31.0 38.4 39.5 42.0 41.4 43.6 42.2 42.3	31.0 38.0 39.0 40.5 40.4 40.6 41.0 41.0	31.0 34.8 35.9 36.9 37.4 37.2 37.0 36.8	31.0 41.5 43.4 46.0 47.8 48.8 47.2 48.9	More breeze.
	Average (excluding initial temperature).						41.3	40.1	36.6	46.2	
4	Conditions same as in No. 3, except there was a strong breeze and the men were allowed to walk about instead of sitting still. The temperatures of the men before and after exposure shows nothing of interest except that the man wearing the campaign hat had an increase of 0.7 F.	28.0 28.2	31.4 31.7	Mar 1 1911	A. M. 10.05	0 5 10 13 21 30 35 45 50	27.3 33.0 36.5 37.7 38.5 39.2 40.0 40.0 40.6	27.5 32.2 34.5 35.8 36.0 36.7 37.5 37.1 37.2	27.4 31.2 33.0 33.5 33.8 33.9 34.4 34.5 35.0	27.4 36.4 42.0 44.5 46.2 46.5 47.5 47.6 48.4	
	Average (excluding initial temperature).						38.19	35.88	33.66	44.84	

Digitized by Google

REPRINTS AND TRANSLATIONS

PROGRESS IN THE METHODS FOR THE CARE OF THE INSANE IN TIME OF WAR.*

BY DR. STIER, STABARTZ UND PRIVATDOZENT, BERLIN.

WITH the recent advances in psychiatry, and also the newly gained experiences of the Russians during the Japanese War, we have now obtained a clearer picture of the course of events which we may expect in a future war in reference to the management of the military insane.

Dr. Stier states that when he agitated this question a number of years ago he referred only to a few general considerations on the subject, hoping that the ensuing discussion might solve the problem. It is, however, possible at the present day to form some definite idea of the preparations which the military authorities should make for the proper care of the military insane in campaign. He mentions the most important considerations from his point of view. He thinks that provision should be made by the supply department of the concentration stations for the furnishing of a sufficient quantity of hyoscin, which is so indispensable in war time, for the quieting of excited insane patients. The drug had better be furnished in solution in sealed glass tubes, ready for injection. He prefers the following formula:

Scopolamin hydrobrom.,	0.0006
Morph. mur.,	0.02
Aq. dest.,	1.00

In addition, it is necessary to provide a considerable quantity of trional and veronal, as these drugs answer the same purpose and are indispensable for the preparation of the insane patients, especially if long distance transportation is to be taken into consideration. Use can also be made of the same drugs in the field and other military hospitals. It is to be hoped that space will be found for these drugs among the medical supplies furnished the formation at the front. Among troops in action and in the field

*Translated for the Military Surgeon by Capt. L. L. Smith, Medical Corps, U. S. A.

Digitized by Google

of operation the management of acutely excited patients furnishes the greatest difficulties. The rapid and energetic quieting of such patients is therefore of great interest to the army.

It is provided in the Regulations (K. S. O. 27/1/07) that the military surgeon under certain circumstances is required to maintain a special psychiatric service, and that the supply depots should be prepared to furnish the necessary supplies with as little delay as possible. Each supply department is expected to furnish the following:

12 Tubs for continuous baths,
20 Box or lattice beds,
20 Pairs shoes which can not be torn,
80 Suits, made in one piece of material not easily torn, and buttoning in the back.

A considerable number of dry earth closets should be available for the use of such a department, but it should be taken into consideration that unless due precautions are observed the latrines are often the places chosen by insane patients to commit suicide.

A further difficulty in the management of a department for the insane is the creation at the proper time of a requisite personnel. This difficulty is, however, somewhat obviated by the recent addition to the Regulations (K. S. O., 525), which provides "that a part of the sanitary personnel of the Medical Department is trusted with the care and nursing of the military insane." This does not mean the selection of a personnel from the lowest grade, but really refers to surgeons and properly trained nurses. At the present time there is already a considerable number of such sanitary personnel in the active army who have received special training in the management and care of the insane. There is an increasing number of the younger sanitary officers who have been detailed at psychiatric clinics for instruction, and also quite a few sanitary soldiers who have been trained in the nursing of the insane for a period of several months at the larger insane asylums. A number can also be instructed in practical service, so that there can then be placed at the disposal of each military district at least a few surgeons and nurses trained in the care of the insane. There is also a large number of surgeons and men on the reserve list who, in times of peace, are actively engaged in the

Digitized by Google

work of the large insane hospitals of the provinces, and it could be easily arranged to further augment the personnel with these especially trained individuals. A prerequisite, however, is that in the preparation for mobilization of the troops, provision should be made for the addition of such personnel to the Medical Department.

Finally, in order that the attendants especially trained in the nursing of the insane should be available at the required time, it is provided in Regulations, (page 50, K. S. O.) that as soon as the nurses have received their training in the care of the insane in the military hospitals the Commander-in-Chief of the Army should be furnished with a list of their names.

Arrangements for the procuring of railroad cars which are suitable for the transportation of the insane has, until the present time, not been especially provided for. The conversion of the ordinary cars of the hospital train into those especially suitable for this purpose could be arranged without much trouble. However, during the first few weeks of the war this arrangement need not receive special attention, but in order to expedite matters at the proper time it might be recommended that mention be made of such preparation in an appropriate place in the service orders. The expeditious transportation of the military insane to their destination without changing cars is considerably facilitated by the provision of the Regulations (K. S. O., p. 112, 114 and 115), which requires that the number of places where the military insane are to be distributed should be especially designated by the line commanders, and that this list should be adhered to continuously throughout the trip. The line officers will then inform the Chief of the Field Sanitary and Transportation Departments of such arrangements.

It is also advisable that volunteer surgeons and nurses (especially the latter) who have had some experience in the management and nursing of the insane, should in times of peace receive special instructions in their duties in the field. An excellent application of the work they would be expected to perform in the hospital and transport service would be found in the transfer of the military insane from the field of operation to the psychiatric hospital, in nursing them there, and in a still higher grade as attendants accompanying the insane during their transportation

Digitized by Google

home. A very efficient and experienced personnel will be required for the transportation department, as they must be prepared during the long trips to act, to a certain extent upon their own responsibility. The taking away from the nursing personnel of the insane department to supply a personnel for the transportation department is no less reprehensible than to place the transportation of the insane soldiers in the hands of those inexperienced in their care. If experienced surgeons and nurses are not at the disposal of the sanitary department in the particular military district, then it would be necessary to detail, as is done at the present time, sanitary officers and men from the regular sanitary personnel to make up a transportation personnel for the care of the military insane.

Digitized by Google

CURRENT LITERATURE

Titles marked with an asterisk (*) are abstracted below.

AUSTRIA.

Der Militärarzt,

June 9th and 23rd, 1911.

1 Sanitary Report of the Royal and Imperial Austrian Army for 1909. Dr. Myrdacz.
2 Statistical Report of the Royal and Imperial Austrian Army for 1908 and 1909. Dr. Myrdacz.
3 *Cardiac Neuroses and Their Importance for the Military Surgeon. Dr. Arthur Mann, Regimental Surgeon.

3. **Cardiac Neuroses and their Importance for the Military Surgeon.**—To discuss this subject properly it is necessary to define a neurosis of the heart and to differentiate it from those diseases in which an anatomical lesion is found. This, however, is not easy. von Rowberg defines the condition as follows: Functional disturbances of the heart and vessel inervation which run their course without influencing the general circulation or the general distribution of the blood or the size of the heart muscle, yet are accompanied by abnormal subjective sensations and often by changes in the cardiac rythm and the tone of the vessels.

The etiology, as with other neuroses is not well understood. In general it may be produced by the same causes which produce the symptoms of neurasthenia. Very often, in the history, it is stated that the patient's father or mother died of heart disease and that the patients live in fear of a like fate. The normal man scarcely feels his heart beat at night; if his attention be attracted to it he may feel the thrust of the apex against the chest wall. Oppenheim and Goldschneider have explained the manner in which an increasing amount of attention, in a nervous individual, may make him conscious, not merely at intervals, but at all times

Digitized by Google

of the heart movements. As his introspection increases it may increase or decrease the frequency of the systole, and the patient becomes aware of other unpleasant sensations. We next find him anxiously counting his pulse, and inferring that he has heart disease whenever the rythm varies from the normal.

Sexual disturbances are the commonest causes of this condition, and Herz has described a group of cases under the name of phrenocardia. One class of cases is made up of older, married persons, who, to avoid the cares of children do not indulge in normal sexual intercourse. Seeligmueller believes that unsatisfied sexual excitement (psychic onanism) may be a cause. The author's experience shows that masturbation may be a cause of this neurosis, although it is known that the typical heart of the masturbator shows an hypertrophy of the left ventricle.

There are no statistics showing the frequency of cardiac neuroses yet Treupel in a short time was able to diagnose 400 cases. Mann found many cases among troops and these were found not alone among the better class of men, but also among men recruited from peasant farmers and unskilled laborers. It is possible that the desire to avoid military service may increase the number of cases among troops; most authors believe the condition most common among females of the upper classes.

The symptoms are both sensory and motor. All kinds of unpleasant sensations, from high pressure and tickling to terrific, unbearable pain, are subjects of complaint. We know that direct irritation of the exposed heart does not produce pain. Mackenzie believes since there is not infrequently a hyperaesthesia of the skin in the heart region and on the inner side of the left arm, that there is a viscerosensory reflex from the heart to the brain and a corresponding visceromotor reflex causing a tonic contracture of the intercostal muscles; a protective contracture resembling the muscular defense in abdominal diseases. The pain is therefore like that in muscle cramp and when localized in the diaphragm has been called phrenodynia.

The motor disturbances include besides diminished and increased pulse rate, many forms of arhythmia. Brachycardia is rarely a symptom of a neurosis, much more often tachycardia is encountered. The pulse at rest is 80 to 90, but on exertion runs up to 140 to 180. Independent of exertion paroxysmal tachycardia

Digitized by Google

occurs, with a pulse of 200 or more per minute; Schlesinger considers these attacks the equivalents or complications of epilepsy or hemicrania.

The most frequent form of arhythmia is the respiratory, an exaggeration of the normal condition. Almost equally common is the arhythmia due to so-called extra systole. To understand this we must remember the following four points: origin of impulse, responsive power, conductivity for the inciting impulse and contractility. The heart possesses, in the region of the sinus, Keith's ganglion or rhythmatic center. If this is absent Tawara's center in the atrioventricular border takes its place. The impulse starting in the ganglia causes a contraction of the muscle; now and then it happens that an extra contraction occurs which does not come from the ganglia and this constitutes the extra systole. Its causes are not known; it apparently may be produced by psychic influence, by reflexes from the intestine or genitals or by overloading the heart. The patient's sensations in this condition are particularly unpleasant, the heart seeming to stand still. Absolute irregularity is always due to organic obstruction to the regular passage of the impulse from Keith's and Tawara's centers.

Hering has named the completely irregular arhythmia which may be neurotic *Pelsus irregularis perpestuns*. Another pulse encountered in cardiac neurosis is the *Pulsus alternans* by which is understood a regular sequence of large and small beats, this may be due to a disturbance in the contractility of the heart muscle, but it is also seen in neurotic tachycardia. This should not be confused with the *Pulsus bigeminus*, where a normal beat precedes a weaker which is, in turn, followed by a pause; this always indicates an organic lesion.

The size, volume and tension of the pulse offer little assistance in diagnosis of cardiac neurosis; more important is the blood pressure which is usually increased. In neurotic individuals a precordial thrill may appear as a result of the excitement attending the examination. Very little is to be learned by percussion or auscultation, although some authors describe the tone as not clear, or note over the apex a short rolling murmur. It is probable that this sound is due to the accompanying anemia. It is quite important to carry out this examination with the patient lying and upright and also after vigorous exercise.

Digitized by Google

The other general symptoms due to disturbances of the vasomotor system are dermographia, cold, moist, pale and livid hands and feet and increased sweat secretion.

There is little difficulty in diagnosing well marked forms of cardiac neuroses, but in mild cases many difficulties are encountered, and in these the signs of Erben and Herz are often useful. Erben's sign is produced by having the patient with bowed head bend over or squat; after five to ten normal beats the pulse is suddenly and markedly slowed; on resuming the upright position the former rate is resumed or increased. Herz's sign is as follows: The patient is directed to flex the right arm as slowly and evenly as possible. In health the pulse in the left arm is unchanged, in degeneration of the heart it is slowed, while in neurotic conditions there is a great increase in its frequency. The sign has been of less value than Erben's. Herz has also occasionally noted a slower pulse in neurasthenics while standing than lying down.

The patient with true disease of the heart is also unable to hold his breath as long as the healthy or neurotic patient. When a patient can hold his breath for a considerable time it points very decidedly against an organic lesion; if, however, he is able to hold it for less than fifteen seconds, it is probable that there is lack of compensation.

Waldvogel states that a difference of 20 m.m. in the blood pressure while lying and standing indicates organic disease. The amount of urine secreted is greater during the day than at night, but in disease of the heart a greater amount may be excreted at night.

It is necessary because of the excitement to make repeated examinations in all cases of suspected neurosis.

Other factors which the military surgeon must consider are the heart poisons, caffein and nicotine, which can produce both a rapid and an irregular pulse. For this reason all heart cases are sent to the larger hospitals before discharge from the service.

Persons with severe functional disturbances are not suitable for service. Lighter cases may be retained if the recruit drills are modified and then continued beyond the usual period; but such persons soon prove unserviceable, especially in mounted commands and company commanders find it difficult to carry out a properly graded course of training for these weaklings.

Digitized by Google

Only the lighter cases are able to endure the military service; the moderate cases may do well enough in times of peace but will not stand the strenuosity of war; the severe forms of cardiac neurosis should not be held for service under any conditions.

F. F. RUSSELL.

BELGIUM.

Archives Médicales Belges,

December, 1911.

4 The Prophylactic Treatment of Asthma. M. Philippart.
5 Neurasthenia. M. Hainaut.

C. F. CRAIG.

FRANCE.

Archives de Médecine et Pharmacie Militaires,

January, 1912.

6 Severe Empyema Due to the Streptococcus and its Treatment by Injections of Collargol. H. Friant.
7 *Epidemic of Paratyphoid in the 65th Infantry. Pesme, Barrier and Ribereau.
8 Transportation of Sick and Injured in Mountains. L. Moureaux.

7. **Epidemic of Paratyphoid.**—A fatal case, probably paratyphoid, occurred in the 3rd company in June. This was followed by a number of cases of diarrhoea. In August 11 cases developed of well marked infection with paratyphoid B. Six cases were in one room where 24 men slept. One officer was infected, apparently by his orderly. By exclusion of other factors the authors reach the conclusion that this was a contact epidemic.

H. J. NICHOLS.

Archives de Médecine et Pharmacie Navales,

January, 1912.

9 Four Years' Service (in Tuberculosis Work), Naval Hospital, Rochefort. M. le Dr. A. Bartet.
10 *Leishmanioses. Lecture delivered at the Pasteur Institute. M. le Professeur A. Laveran. Reported by M. le Dr. Goéré.
11 Schweinfurth Green, with Benzine. M. B. Henry.
12 Note on the Hospitals of Sabory, Sumatra. M. le Dr. Féret.

Digitized by Google

10. **Leishmanioses.**—In a lecture delivered at the Pasteur Institute Professor A. Laveran gave the following interesting history of a genus of parasites with the name given above, and an interesting account of its identification.

1. KALA-AZAR.

This disease appears in an acute and chronic form. The first, long known in India, and to which more especially the name of Kala-azar is applied, signifying "black-fever" or "black death," is also called Assam fever. Until recent years this malady was confounded with paludism, which it resembles in its principal symptoms. It is characterized above all by fever and hypertrophy of the spleen. The fever is irregular, but this is true of paludism; the splenic hypertrophy is often as accentuated as in paludism; besides paludism is endemic in regions where Kala-azar abounds and it is not rare to see the two affections associated in the same individual. In 1898-1899 a commission of inquiry, of which L. Rogers and R. Ross were members, arrived at the conclusion that Kala-azar was a form of paludal infection, and in proof of this was cited cases of blood examination in which were found the haemamoeba malariae. Furthermore, before the discovery of the specific haematozoon it was common to class all affections characterized by fever and splenic hypertrophy as paludal, sleeping sickness not escaping this rule.

It was not until 1903 that the pathological agent of Kala-azar was discovered almost simultaneously by Leishman in England and by Donovan in India.

In May, 1903, Leishman found in the spleen of a soldier, dying in London of a disease contracted at Dum-Dum, near Calcutta, peculiar elements that he described carefully. These were little protoplasmic bodies ovalar in form, containing a "Karyosome" and a little accessory "Karyosome." Leishman considered these forms as an involution such as is often found in trypanosomiasis after death.

In July of the same year, 1903, Donovan encountered in India identical corpuscles in the spleen of dead subjects. Besides, these bodies were found in the splenic blood of subjects suffering from Kala-azar. Never, on the contrary, did he find trypano-

Digitized by Google

somes. Laveran and Mesnil, to whom Donovan communicated his preparations, described the parasite under the name of *"Piroplasma Donovani."*

In 1904, Bentley re-found the parasite in epidemic forms of Kala-azar—then observations multiplied in India; a morbid entity was created of which the detailed relations were published; the new malady was minutely described by Rogers, Donovan, James and Christophers; it was seen that it occupied an important place in the nosology of India.

In 1904, Rogers obtained cultures of the parasite in citrified blood; he saw in these cultures forms furnished with flagellae and deprived of the undulatory membrane analogous to flagella of the type *Herpetomonas*. Under these circumstances the need of a new name for this parasite arose, R. Ross proposed a new genus, genus *Leishmania,* and the parasite of Kala-azar took the name of *Leishmania-Donovani.*

JOHN C. WISE.

Bulletin de L'Academie de Médicine,

No. 43, December 26th, 1911.

13 Eulogies of Sir Joseph Dalton Hooker and M. Lannelongue.

January 9th, 1912.

14 Index of Volume LXVII of the Bulletin.

C. F. CRAIG.

GERMANY.

Deutsche Militärärztliche Zeitschrift,

January 5, 1912.

15 Syringes in Field and Garrison Equipment. V. Tobold.
16 *On the Question of the Steam Sterilization of Rubber Gloves. Kutscher.
17 A Letter of Realdo Colombo from Cremona. Karl Frey.

January 20, 1912.

18 On Diseases of the Commanding Voice. Zumsteig.
19 Rare Anomalies. Drenkhahn.
20 Operative Treatment of Injuries to the Spinal Cord. Coste.

Digitized by Google

16. **Steam Sterilization of Rubber Gloves.**—According to a circular of the War Department, rubber gloves should be sterilized by steam as follows: The gloves are powdered with talcum and strips of gauze are put into the finger tips. The gloves are then enclosed in absorbent paper and subjected to live steam 30-60 minutes. The efficiency of this treatment has been questioned by certain authors who claimed that it was necessary to draw the rubber gloves over cotton gloves in order to secure complete penetration of the steam. The author shows by comparative experiments with cocci and spore bearing organisms dried on paper and put in the finger tips that the procedure recommended in the circular secures complete sterilization.

H. J. NICHOLS.

GREAT BRITAIN.

Journal of the Royal Army Medical Corps,

January, 1912.

21 A Critical Review of Kala-Azar and Tropical Sore. Lieut. Colonel Sir William B. Leishman, F. R. S., R. A. M. C.

22 Further Investigations on the Use of Salvarsan in Syphilis. Major T. W. Gibbard, Major L. W. Harrison, and Lieut. A. S. Cane, R. A. M. C.

23 *An Outbreak of Paratyphoid B. Fever in Malta. Major M. H. Babington, R. A. M. C.

24 Notes on the Treatment of Syphilis in Uganda. Major G. J. Keane, R. A. M. C.

25. Parthenogenesis. Col. R. H. Firth, R. A. M. C.

26 *The Clearing Hospital and the Evacuation of Sick and Wounded from an Army in the Field. Lieut. Colonel H. E. R. James, C. B., and Major C. E. Pollock, R. A. M. C.

23. **An Outbreak of Paratyphoid B. Fever in Malta.**—The author states that towards the end of August, 1910, there was a sudden outbreak of fever in the 1st Batt., Suffolk Regiment. The outbreak was preceded by a few isolated cases earlier in the year. The intervals in days between the return of the first cases to barracks and the onset of the disease in the succeeding cases, i. e., the second to the fourteenth in the series were as follows: 16, 25, 29, 30, 31, 32, 32, 33, 33, 34, 36, 51. All the cases but one came from the Suffolk Regiment, occupying the St. Andrew's Barracks. There were fourteen cases with one death. This death resulted from

Digitized by Google

hemorrhage. In seven cases the diagnosis was made on the result of the blood culture. The organisms isolated were identified as the B. paratyphoid "B." In the remaining cases the diagnosis was based on the serum reaction. For statistical purposes, only the seven cases from whose blood the bacillus was isolated were returned as paratyphoid "B." It was, according to the author, impossible to definitely determine the cause of the outbreak.

26. **The Clearing Hospital and the Evacuation of Sick and Wounded from an Army in the Field.**—The author discusses (1) the function of the clearing hospital, and (2) the evacuation of sick and wounded from an army in the field. He suggests that on mobilization the personnel assigned to the cleaning hospital should be divided into a hospital section or main body, one convoy section and two rest station parties. This is, he states, practically what the R. A. M. C. Training lays down. The question of evacuation has to be considered in three military situations: (a) When the force is marching; (b) When the force is stationary; (c) When a battle takes place. "In conclusion, we would again remind you of the three-fold nature of the duties which the clearing hospital has to carry out, viz: to take over the sick and wounded of three field ambulances, to superintend their evacuation to the railway, and to form a rest station at the railway station."

ALBERT G. LOVE.

Public Health,

November, 1911.

27 Evolution of the Medical Officer of Health. Bostock A. Hill.
28 *Acute Epidemic Poliomyelitis. Frederick E. Batten.
29 The Early Days of Public Health Reform in Glasgow. Nathaniel Dunlop.

28. **Acute Epidemic Poliomyelitis.**—The author gives a valuable summary of what is known regarding the etiology, epidemiology, and prevention of this disease, and it may be of value to the readers of THE MILITARY SURGEON to briefly review the facts given in the paper. After considering the various types of the disease which are met with clinically, the author considers the experimental evidence which has been adduced by the work of Flexner, Lewis, Landsteiner, Popper, and Levaditi in regard to the etiology of the disease. The following facts have been experi-

Digitized by Google

mentally proven: That it is possible to induce the disease in monkeys by injection of the virus directly into the brain; by intravascular injection; by intra-neural injection, and by subcutaneous injection. In whatever way transmitted the virus becomes localized in the spinal cord and medulla.

No bacteria or other organism has ever been found in film preparations or in cultures, and the virus, like that of rabies and vaccinia, can withstand glycerination for many months. It is also able to pass through the finest Berkefeld and Chamberland filters.

The virus can be shown to be present in the mucous membranes of the nose and in the salivary glands of infected monkeys; it has not been demonstrated in the urine or faeces. Osgood and Lucas have shown that the virus may be obtained in a still active condition from the mucous membrane of the nose of an infected monkey as long as six months after infection, and Leiner and Wiesner have infected monkeys through the uninjured nasal mucous membrane. Monkeys living in close contact with infected monkeys have never been known to contract the disease through such contact.

The incubation period of experimental inoculation is between 8 and 12 days. Of 81 monkeys infected by Flexner and Lewis, 47 showed symptoms of the disease in that period, while in 18 the paralysis occurred before the eighth day, and in 16 after the 12th day. Landsteiner and Levaditi have shown that the incubation period is always prolonged by using virus which has been passed through a filter, the period generally being doubled with such virus.

As regards immunity, it is probable that one attack of the disease confers immunity, and the serum of persons who have suffered from the disease has the power of neutralizing the virus *in vitro*. Monkeys cannot be reinfected experimentally after suffering from the disease, and the serum of such an animal will neutralize the virus *in vitro* but not *in vivo*.

Levaditi has shown that the serum of a monkey rendered immune to the Flexner virus will not neutralize the virus of Landsteiner, and *vice versa*. The virus of Flexner is said to be more virulent than that of Landsteiner, according to Levaditi. The author concludes his excellent paper as follows:

Digitized by Google

"From the evidence, clinical, experimental, and epidemiological which has been accumulated during the past year, one is justified in regarding poliomyelitis as an infective disease. It has an incubation period of probably less than six days in man although experimentally the incubation period is between 8 and 12 days. It is communicated from person to person, probably by means of secretions from the nose and mouth."

Regarding prophylaxis, he says: "I consider that notification, isolation of the infected, disinfection of the nasal and other discharges, and quarantine of all contacts are essential."

December, 1911.

30 National Insurance, Public Health and School Hygiene. H. Meredith Richards.
31 The Present Position of the Public Health Medical Service. Henry Handford.
32 The Certification of Milk. J. P. Walker.
33 The Tuberculosis Campaign in Ipswich. A. M. N. Pringle.
34 A Note on the Cerebro-spinal Fluid in Acute Poliomyelitis. J. Graham Forbes.
35 Bacteria Carriers in Disease. A. Adam.
36 Bacillus Carriers in Disease. Alex. Anderson.
37 Bacillus Carriers of Disease. Leslie J. Milne.
38 A Note on the Epidemiology of Poliomyelitis. Robert Burnet.

January, 1912.

39 The Notification of Births Act, 1907. A. A. Mussen.
40 *The Prevention of Human Tuberculosis of Bovine Origin. William G. Savage.
41 Some Aspects of the Housing Question in Rural Districts. C. E. Tangye.
42 Garden Shelters for Home Treatment of Consumption. Sidney Davies.
43 A Chronic Carrier-Case of Typhoid Fever. H. P. Newsholme.

40. **Prevention of Human Tuberculosis of Bovine Origin.**—Dr. Savage calls attention to the fact that a considerable proportion of cases of tuberculosis other than phthisis, especially glandular and intestinal infections in children, are due to infection with the bovine type of tubercle bacillus, and considers in detail the method at present in use to limit or destroy tubercular infection in cattle, and thus prevent the infection of the human being.

Digitized by Google

Bangs method, or the separation of the healthy from the diseased animals, and the rearing of a healthy, noninfected stock, is the method relied upon in Denmark. Tuberculin is used as the diagnostic agent, and all animals suffering from tuberculosis of the udder or those showing wasting are slaughtered. The remainder of the herd is divided into a "free portion" and an "infected portion," and these are separated and kept apart thereafter at all times. The calves born of infected mothers are generally free from tuberculosis, and, after being tested with tuberculin, and found free, are removed from their mothers and fed upon milk heated to 80° C. The herd is tested with tuberculin every six months and as fast as a "reactor" is found, it is removed from the tuberculosis free portion of the herd and placed in the infected portion. The method is efficient but requires great vigilance and much time and patience if it is to prove successful.

Ostertags method, practiced in Germany, depends for its success upon the removal from the herds of all cases of "open tuberculosis," i. e., those in which the bacilli are eliminated externally. The diagnosis is made by continuous veterinary inspection and by bacteriological examinations. The animals found eliminating the bacilli are at once slaughtered and thus the herd is freed from the only animals which are sources of infection. This method can never eradicate the disease, however, because one can never tell when a cow suffering from tuberculosis and not eliminating the bacilli may begin to do so, but it no doubt does prevent the spread of the disease to a very considerable extent.

Vaccination against tuberculosis has not given satisfactory practical results although, theoretically, it is based upon scientific data arrived at from animal experimentation. Numerous investigators have shown that the resistance of cattle to infection by the tubercle bacillus may be increased by vaccination with living tubercle bacilli of virulence too low to cause infection, but the immunity so produced lasts only a year or two and it cannot be said that any of the methods of vaccination are sufficiently reliable to be of practical use in the eradication of bovine tuberculosis.

C. F. CRAIG.

Digitized by Google

The Indian Medical Gazette,

December, 1911.

44 A Note on "Quinine Without Tetanus," and Some Remarks on "Tetanus and Quinine." Lieut. Colonel Sir David Semple, M. D.

45 The Radio-Activity of Some Thermal Springs in the Bombay Presidency. The Rev. A. Steichen and The Rev. H. Sierp.

46 A Preliminary Note on Blood Pressure. Major J. G. P. Murray, M. D., F. R. C. S. (Edin.), I. M. S.

47 A Case of Acute Hepatitis with Indicarions of Pus Formation, Subsiding under Ipecacuanha. Major F. F. Elwes, M. D. (Lond.), I. M. S.

48 Some Cases of Leech in the Air Passages. Major W. E. Scott-Moncrieff, I. M. S.

49 The Treatment of Oriental Sore. Capt. G. G. Jolly, I. M. S.

50 An Uncommon Fracture of the Skull. Capt. T. H. Keates, M. D. (Lond.), I M. S.

51 Worms in the Peritoneal Cavity Simulating Appendicitis. R. G. Pickle.

ALBERT G. LOVE.

Digitized by Google

REVIEWS

MEDICAL SERVICE IN CAMPAIGN. A Handbook for Medical Officers in the Field. By Major Paul Frederick Straub, Medical Corps (General Staff), United States Army. Prepared Under the Direction of the Surgeon General, United States Army, and Published by Authority of the War Department. Second Edition. Octavo of 186 pages, illustrated. Philadelphia: P. Blakiston's Son & Co., 1912. Price $1.50 net.

Probably one would hardly have been believed if he had stated a year and a half ago when the first edition of this book appeared that a second edition would be demanded within so brief a period. Moreover, it is understood that not only has this work been generally read within the military service, but that there has been a considerable demand for it outside the service. The medical department of our Army has always suffered from lack of public knowledge of its duties, objects and needs and any book which will serve to correct this condition should be doubly welcome. As stated in the review in these pages when the first edition appeared, this work should not only be read, but carefully studied by every medical officer. Officers of other branches of the service will also profit from its perusal.

In the new edition errors have been eliminated and new matter has been added, suggested by further experience at the Army War College, and with the sanitary units of the troops recently mobilized in Texas. The plates have been redrawn and a few new illustrations have been added. Care has also been taken to make the book conform to existing regulations and orders. The author, in his preface, expresses his indebtedness to Lieutenant-Colonel D. H. Boughton, General Staff, U. S. A. The practice of medical officers advising or collaborating with line officers in books of this character has much to commend it from every standpoint and in itself is a sign that it is realized all branches of the service have a community of interest in preparation for war.

Digitized by Google

HANDBOOK ON MILITARY SANITATION FOR REGIMENTAL OFFICERS. By Major K. B. Barnett, M. B., B. Ch., F. R. C. S. I., Royal Army Medical Corps. With an introduction by Lieut. General Sir Horace L. Smith-Dorrien, K. C. B., D. S. O., A. D. C. London: Forster, Groom & Co., Ltd., 15 Charing Cross, S. W., 1912. Price, 2/6.

This is one of a number of books which have appeared since the South African War for use as manuals in instructing British line officers in the subject of sanitation. The British have apparently concluded that instruction of soldiers in sanitation should be given by regimental officers on the ground that this method will prove more effective than if this duty devolved on medical officers. This is not the practice in all armies and in our opinion is not one that is likely to be attended by the best results. A half taught instructor is notoriously a poor teacher and line officers in any army can hardly be expected in the midst of more engrossing duties to become expert sanitarians or competent instructors in sanitation. It must be freely admitted, however, since the present methods have been put into practice in the British Army conditions have notably improved so far as sanitation is concerned.

The book under discussion gives the smattering of information on sanitation which it is generally regarded as desirable for regimental officers to know, and this is presented clearly and in such a form as to attract the interest of the audience to which the book is addressed.

ALCOHOLIC DRINKS AND NARCOTICS. Their Nature and their Effects upon the Human System. By Frank R. Keefer, A. M., M. D., Lieutenant Colonel, Medical Corps, United States Army; Professor of Military Hygiene, United States Military Academy, West Point, N Y. United States Military Academy Printing Office, 1911.

It is a pleasure to have the opportunity to review a book on the subjects to which the present one is devoted, which contains some semblance of scientific truth. In the past, most books of this character have been written by authors so prejudiced against alcohol and narcotics that they have been constitutionally unable to treat the subject fairly. Moreover, in most instances such authors have not had the scientific knowledge necessary to state the facts.

Digitized by Google

The present author has taken a sane view of his subjects and has gathered together in his little book the latest scientific knowledge of alcohol and narcotics. In addition, he has discussed the subject in a manner that will appeal to the class of students to which the book is addressed. As the book is specially written for the Military Academy, it rightly contains certain matter which is only of particular interest to cadets. If this were eliminated, or better replaced by material of more general interest to boys and young men in civil life, it would constitute an excellent text book for civilian schools. The importance of the subject to the youth of our country suggests another edition on the lines mentioned.

PRACTICAL GYNECOLOGY. A Comprehensive Text-Book for Students and Physicians. By E. E. Montgomery M. D., LL. D.; Professor of Gynecology, Jefferson Medical College; Gynecologist to the Jefferson Medical College and St. Joseph's Hospitals; Consulting Gynecologist to the Philadelphia Lying-in Charity, the Kensington Hospital for Women, and Consulting Surgeon to the Jewish Hospital. Fourth Edition, Revised and Rearranged. With Five Hundred and Eighty-nine Illustrations, the greater number of which have been drawn and engraved specially for this work, for the most part from original sources. Octavo of 857 pages. Philadelphia: P. Blakiston's Son & Co., 1912. Price $6.00 net.

This book, which now appears in its fourth edition, is a comprehensive work on the subjects of which it treats. Notwithstanding the many books devoted to gynecology, the present one has made a place for itself and is doubtless well and favorably known to many of our readers. The book is well arranged, clearly written, and the numerous illustrations are exceptionably good. The number of illustrations will be best appreciated by consulting the general index where they appear in heavy face type, which in itself adds to the convenience of the book for reference.

A POCKET MEDICAL DICTIONARY. Giving the Pronunciation and Definition of the Principal Words used in Medicine and the Collateral Sciences, including very complete tables of the arteries, muscles, nerves, bacteria, bacilli, micrococci, spirilla, and thermometric scales, and a new dose-list of drugs and their preparations, in both the English and Metric Systems of Weights and Measures, based upon the eighth revision U. S. Pharmacopoeia, also a veterinary dose table. By George M. Gould, A. M., M. D. Author of "The Illustrated Medical Dictionary," "The Practitioner's Dictionary," and the "Student's Medical Dic-

Digitized by Google

tionary." Sixth Edition, Revised and Enlarged. 34,000 words. Philadelphia: P. Blakiston's Son & Co., 1911. Price $1.00 net.

Gould's dictionary is well known through previous editions. The special advantage of a pocket medical dictionary has never appeared to us. In fact, we much prefer to use a medical dictionary of larger size in which crowding is less necessary and definitions are not abridged. This opinion would hardly appear to be general, however, as it is understood the present dictionary has proved very popular.

Subject to what has been said, this dictionary is an excellent one. The 34,000 medical words which it contains are pronounced and defined and the edition is brought up to date.

THE PHYSICIAN'S VISITING LIST (Lindsay & Blakiston's) for 1912. Sixty-first year of its publication. Philadelphia: P. Blakiston's Son & Co. Price $1.25 net.

This is one of the best visiting lists which is available to physicians. It is attractive in appearance, convenient in size, and contains within its covers under proper headings pages for all memoranda which are essential for the busy practitioner.

MINOR AND EMERGENCY SURGERY. By Walter T. Dannreuther, M. D.; Surgeon to St. Elizabeth's Hospital and to St. Bartholomew's Clinic, New York City. 12mo volume of 226 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, $1.25 net.

The present book is written especially for the hospital interne as a guide to the performance of his various duties, so far as surgery is concerned. It would appear to be well adapted to this purpose and also to possess interest for any practitioner who has to deal with surgical emergencies. Generally speaking, the advice given is good and the suggestions in regard to surgical procedures are in accordance with the accepted practice. This is hardly the case, however, in respect to the use of wet dressings, which are advocated to an extent that is hardly permissible under the rules of modern surgery.

A COMPEND OF GENITO-URINARY DISEASES AND SYPHILIS. Including their Surgery and Treatment. By Charles S. Hirsch, M. D. Formerly Assistant in the Genito-Urinary Surgical Department, Jefferson Medical College Hospital; Consulting Physician, Social Service Hospital and Juvenile Protective Association, Philadelphia. Second Edition. With 74 illustrations. Octavo of 359 pages. Philadelphia: P. Blakiston's Son & Co., 1912. Price $1.25 net.

Digitized by Google

Quiz compends, though they cannot, of course, replace more elaborate works on the subjects of which they treat, are of considerable value to the student, especially for purposes of review. It is generally recognized that the Blakiston series of compends is one of the very best, and this good reputation has been enjoyed for many years. The present volume which now appears in its second edition is well and clearly written and contains all matter which one would expect to find in a compend, presented in a form that readily lends itself to study. The illustrations are sufficient in number and are appropriate to the text.

Digitized by Google

EDITORIAL

THE recent death of Lord Lister has resulted in acknowledgments from all parts of the world of the value of his contribution to modern surgery. This, with anaethesia, did so much for the development of operative procedures that the surgeon's craft assumed an entirely new status. Lord Lister, with the becoming modesty which characterized him, always stated that his work consisted in making use of Pasteur's discoveries for the benefit of surgery. His doctrine of antisepsis was accepted almost immediately by France and Germany, but made very slow progress at home in Great Britain.

It is interesting to note that Lord Lister's studies which first attracted his attention to the parasitic nature of surgical infections were devoted to hospital gangrene. This infection, as is well known, constituted one of the great scourges of armies in the pre-antiseptic era. In fact, in armies at war ideal conditions are presented for the spread of surgical as well as other infections. The whole world is indebted to Lister, it is true, but as soldiers, prior to his time, in case of any wound faced a horrible death they should be particularly grateful to him.

It is sometimes stated that military surgery is only surgery after all. This may have been the case before Lister, but it is not so today. In our Civil War prompt amputation was the rule and the rapid operating under unfavorable conditions unquestionably was responsible in many instances for the wide spread of surgical infections. Now we realize that surgical procedures should not be undertaken until the surroundings can be made such that infections of wounds can be prevented. This has pretty well revolutionized surgical aid in the field, including, of course, the organization and administration of the medical departments of armies at war.

Today every officer and soldier is provided with a first aid

Digitized by Google

packet, the essential of which should be a dressing of, in our opinion, antiseptic gauze. Medical officers do, to be sure, accompany the firing line, but their purpose here has mainly to do with maintaining morale with little opportunity for surgical procedures. From the firing line wounded soldiers are hurried to the rear and practically no operations are performed until the field hospital is reached, which is the first point where wounds can be cared for under modern methods. Hospital gangrene has disappeared probably never to return, and other surgical infections if still not uncommon have been greatly reduced in numbers. In the case of the soldier the better outcome of wounds must, of course, be partly ascribed to the small modern bullet. With the unstable pointed bullet it is probable that infections will increase; still we all realize that whatever the wounding agent antiseptic methods give assurances of better results than were deemed possible before Lister's work was made known to the world.

In armies, methods of prevention and treatment of wounds or disease are based on the knowledge which science has shed on the subject. We well realize today, for most of us have seen the change, what a great difference realization of the causes of yellow fever and malaria has made. To an even greater extent have antiseptic methods in the treatment of wounds prevented human suffering. They, too, have increased the strength of armies. In the Russo-Japanese War it was not uncommon to meet soldiers who had received one or more wounds and who had, after a brief period, been returned to their commands. Similar wounds at the time of our Civil War if not ultimately fatal would have meant long, if not permanent, separation of soldiers from their organizations.

Lord Lister, who died at the advanced age of 84 years, was fortunate in living long enough to see the principles which he advocated put into practice everywhere. Considerable changes in methods have taken place, of course, since Lister first attempted to destroy pus organisms by means of strong antiseptics, these have been in the line of simplification and improvement, but they are all based on preventing such organisms from exercising their will in wounds. To Pasteur and Lister, then, one not a surgeon and the other not a military surgeon, military surgery owes its deepest debt of gratitude.

Digitized by Google

NEWS OF THE SERVICES

Captain John R. Barber, Medical Corps, and 1st Lieutenant A. D. Parce, Medical Corps, who arrived from the Philippines in January, have reported for duty at the Letterman General Hospital.

Major William H. Brooks, Medical Corps, who has been before a retiring board, will not be retired from active duty at present. He has been assigned to duty at the Presidio of San Francisco, California, and it is the understanding that he will take a long sick leave to visit Nauheim and receive treatment there.

Major C. R. Koerper, Medical Corps, spent a twenty days' leave of absence in Washington, having been called to this city on account of the death of his father, Colonel Koerper.

1st Lieutenant Charles A. Tetrault, Medical Reserve Corps, has been sent to his home for recall from active service. Dr. Tetrault, it is understood, is to begin practice in civil life.

1st Lieutenant Owen C. Fisk, Medical Corps, is still under observation and treatment at the Walter Reed General Hospital.

The friends of Major Clarence J. Manly, Medical Corps, will be glad to learn that he is recovering from his recent operation at the Walter Reed General Hospital, and is now on sick leave at his home in North Carolina.

Major Arthur W. Morse, Medical Corps, has reported for duty at Fort Morgan, Alabama.

The order sending Major Paul F. Straub (General Staff), Medical Corps, to Manila, will be suspended so that he will sail on October 5th, 1912.

During the month an order has been issued relieving Lieutenant Colonel M. W. Ireland, Medical Corps, from duty in the Surgeon General's Office and directing him to sail for the Philippines August 5, 1912. Lieutenant Colonel Charles M. Gandy, Medical Corps, now on duty in the Philippine Islands, will relieve him in the Surgeon General's Office. Colonel Ireland expects to avail himself of a four months' leave of absence, to take effect upon the arrival of Colonel Gandy.

Captain Lloyd L. Smith, Medical Corps, who has been on a four months' leave studying mental and nervous diseases under Kraeplin in Vienna, has returned to the city and is now doing special work at the Government Hospital for the Insane.

During the last month 1st Lieutenant Charles J. Long, Dental Surgeon, U. S. Army, tendered his resignation for the purpose of going into practice in civil life. It is reported that he will settle at Rock Island, Illinois.

Major Robert B. Grubbs, Medical Corps, who was operated on for appendicitis by Professor Bevans at the Presbyterian Hospital, Chicago, Illinois, on February 7, 1912, is, according to last reports, recovering from his operation.

Digitized by Google

Lieutenant Colonel Charles M. Gandy, Medical Corps, will sail from the Philippines on March 15, 1912.

Colonel L. W. Crampton, Medical Corps, who was relieved from duty in the Philippine Islands, September 15, 1911, and granted a four months' leave of absence, with permission to return to the States by way of Europe, will arrive in Washington about the 23rd of February.

1st Lieutenant Leon C. Garcia, Medical Corps, who was returned to the United States from the Philippine Islands on account of illness, sailed for the Philippines on February 5th. His friends will be glad to know that he has entirely recovered.

In the preliminary examination for appointment in the Medical Corps which was held during the week beginning January 15, 1912, Dr. Paul Stanislaus Wagner was the only successful candidate. Dr. Wagner graduated from the Rush Medical College, Chicago, Illinois, 1911, and is now serving as interne in Two Harbors Hospital, Two Harbors, Minnesota. He has been commissioned in the Medical Reserve Corps and will be brought to the Army Medical School to attend the session which begins October 1, 1912.

1st Lieutenant Charles L. Baker, Medical Reserve Corps, has reported for duty at Fort Ruger, H. T.

The following-named Medical Officers, who arrived in San Francisco, California, from the Philippines on February 12, 1912, were assigned to stations as follows:

Lieutenant Colonel Charles E. Woodruff, Medical Corps, Sanitary Inspector, Western Division.

Major Champe C. McCulloch, Jr., Medical Corps, Fort D. A. Russell, Wyoming.

Major William E. Purviance, Medical Corps, Fort McDowell, California.

Major Albert E. Truby, Medical Corps, Fort Jay, New York.

Captain Philip W. Huntington, Medical Corps, Fort Totten, New York.

1st Lieutenant George H. McLellan, Medical Corps, Fort McDowell, California.

1st Lieutenant Armin Mueller, Medical Corps, Fort Des Moines, Iowa.

1st Lieutenant Clarence E. Fronk, Medical Corps, Fort Benjamin Harrison, Indiana.

1st Lieutenant Victor E. Watkins, Medical Reserve Corps, Fort Sam Houston, Texas.

1st Lieutenant Ziba L. Henry, Medical Reserve Corps, Fort Sill, Oklahoma.

1st Lieutenant Herbert L. Freeland, Medical Reserve Corps, Fort Benjamin Harrison, Indiana.

1st Lieutenant Fred J. Conzelman, Medical Reserve Corps, Fort Mott, New Jersey.

1st Lieutenant Percy G. Drake, Medical Reserve Corps, Fort McKinley, Maine.

Captain G. L. McKinney, Medical Corps, has reported for duty at Fort Caswell, North Carolina.

Digitized by Google

Lieutenant Colonel Thomas U. Raymond, Medical Corps, has been relieved from duty in the Philippine Islands, to take effect July 15, 1912.

Under recent orders issued by the War Department, Major W. T. Davidson, Medical Corps, is relieved from duty at Fort McIntosh, Texas, taking station at Fort Bliss, Texas, relieving Major R. B. Grubbs, Medical Corps, who takes station at Fort Baker, California.

Orders have been issued directing Major E. E. Persons, Medical Corps, to take the course of instruction at the Field Service School for Medical Officers, Fort Leavenworth, Kansas, which begins about April 1st and continues for six weeks. Upon completion of this course Major Persons will proceed to San Francisco, California, and assume command of Field Hospital and Ambulance Company No. 2.

Colonel H. O. Perley, Medical Corps, has been granted a sick leave of absence for a period of two months. Colonel Perley has been confined to his house since the early part of December, 1911.

1st Lieutenant Clarence E. Lauderdale, Dental Surgeon, has been ordered to proceed to the Walter Reed General Hospital, Takoma Park, D. C., for observation and treatment.

Lieutenant Colonel M. W. Ireland, Medical Corps, has been ordered to Chicago, Illinois, to represent the Medical Department of the Army at the Eighth Annual Conference of the Council on Medical Education and the Council on Health and Public Instruction to be held in that city on February 26-27, 1912.

Major Henry S. Greenleaf, Medical Corps, who has been in Washington on leave of absence for a month and one-half, returned to his station, Madison Barracks, New York, on February 5th.

The Governor of Hawaii has appointed Passed Assistant Surgeon G. W McCoy, of the Public Health and Marine-Hospital Service, a member of the Sanitary Commission of Honolulu. Dr. McCoy has also been detailed by his service to attend the Pan-Pacific Congress to be held at Honolulu February 19 to 24, 1912.

Passed Assistant Surgeon R. M. Grimm, of the Public Health and Marine-Hospital Service, gave a stereopticon lecture on tuberculosis at the Farmers' Congress held at the Georgia State Industrial College at Savannah on February 2, 1912.

Passed Assistant Surgeon R. H. von Ezdorf, of the Public Health and Marine-Hospital Service, spent some time during the month of January in Texas investigating the prevalence of cerebro-spinal meningitis in that state, and in conference with the State and Local health authorities. On his way back to his station at Mobile he stopped at Shreveport, Alexander, and Baton Rouge, and other points in Louisiana, upon the request of the President of the State Board of Health, for the purpose of giving public health lectures on cerebro-spinal meningitis.

Passed Assistant Surgeon R. E. Ebersole, of the Public Health and Marine-Hospital Service, has been relieved from duty at the Marine Hospital, San Francisco, California, and has been placed in temporary charge of the quarantine service at Pensacola, Florida.

Digitized by Google

Assistant Surgeon General L. E. Cofer, of the Public Health and Marine-Hospital Service, has been making a tour of inspection of the work in connection with the inspection of arriving aliens at Philadelphia, Pennsylvania, Gloucester, New Jersey, and New York, York, N. Y. While in New York City, February 1, 1912, he delivered an address before the New York Academy of Medicine on the advantages of national control of maritime quarantine

Passed Assistant Surgeons H. S. Mathewson and Taliafero Clark, of the Public Health and Marine-Hospital Service, recently passed examinations for promotion to the grade of Surgeon before a board convened at Chicago. It is expected that their commissions as Surgeons will be issued in the near future.

Passed Assistant Surgeon Hugh de Valin, of the Public Health and Marine-Hospital Service, has been relieved from duty in connection with the anti-plague work in San Francisco, and is now on duty at the Marine Hospital in that city.

Assistant Surgeon R. A. Kearny, of the Public Health and Marine-Hospital Service, has gone to Juneau, Alaska, where he will report for duty on the Revenue Cutter Rush, cruising in Alaskan waters.

A board will be convened on April 8, 1912, for the purpose of examining candidates for admission to the grade of Assistant Surgeon in the Public Health and Marine-Hospital Service. This board will meet at the Bureau of the Public Health and Marine-Hospital Service, No. 3 B Street S. E., Washington, D. C.

Dr. Nelson D. Brecht, who passed the entrance examination for the grade of Assistant Surgeon in the Public Health and Marine-Hospital Service some months ago, has been commissioned an Assistant Surgeon in that service.

A board of officers has been convened to meet at Manila, P. I., for the physical examination of Assistant Surgeon Robert Olson to determine his fitness for promotion to the grade of Passed Assistant Surgeon.

Surgeon J. O. Cobb, of the Public Health and Marine-Hospital Service, has been detailed to represent the Treasury Department on the Lake Michigan Water Commission.

Surgeon H. D. Geddings, of the Public Health and Marine-Hospital Service, has been designated a delegate of the United States to represent his service at the Seventh International Congress on Tuberculosis to be held at Rome, Italy, April 14 to 20, 1912.

Passed Assistant Surgeons John F. Anderson and Joseph Goldberger, of the Public Health and Marine-Hospital Service, have recently reported the results of work done by them, which seems to show that the so-called Brill's disease, of which a considerable number of cases have been reported in New York City, is identical with the typhus fever prevailing in New Mexico.

Certain administrative changes have been made at the sanatorium established some years ago at Fort Staunton, New Mexico, for the treatment of

Digitized by Google

tuberculosis by the Public Health and Marine-Hospital Service, which it would seem should work to the advantage of the patients and assist materially in the management of the sanatorium. An expert farmer has been employed to take charge of the farm, dairy and garden, and of the employees and matters pertaining to these lines of work. He will also have charge of the herd of beef cattle, which numbers about two thousand head, and of the other live stock at the station, including the poultry, swine and horses. A dietitian has also been employed who will have immediate charge of the cuisine and the kitchen and dining rooms for the patients and also of the cooks and waiters, and will be of material assistance in a study of the general subject of the effect of diet upon tuberculous patients now being carried on at the sanatorium. Previously male nurses only have been employed at the station, but it is intended to secure female nurses for duty in connection with the acutely ill and bed-ridden cases. The construction of one hundred tent houses, which has been going on for some time, is nearing completion. These houses will be screened with wire cloth and painted a uniform color to harmonize with the surroundings.

Passed Assistant Surgeon F. C. Smith, who is at present in charge of the sanatorium, is tracing the histories subsequent to discharge of all patients who have left the sanatorium to ascertain the ultimate results in each case. This work is naturally attended with much difficulty owing to the frequent change in address of the sailors who constitute the majority of the beneficiaries. The results of this investigation should be of considerable interest and value in showing the results of sanatorium treatment, and the ability of arrested cases to leave the sanatorium life without detriment to themselves.

Articles by members appearing elsewhere have been noted during the month as follows: A Rapid Method of Inoculation Against Typhoid Fever, by Major Kent Nelson, Medical Corps, U. S. Army, and First Lieutenant W. E. Hall, Medical Reserve Corps, U. S. Army; and The Legal Aspect of Medicine, by Major A. L. Mann, Medical Corps, Illinois National Guard, Retired.

SCHEDULE OF EXERCISES—FIELD SERVICE SCHOOL FOR MEDICAL OFFICERS, SESSION OF *1912*.

[The time for the forenoon is given in ROMAN figures; for the afternoon *italic figures*.]

Monday, April 1.

9 Remarks to class by the Commandant, The Army Service Schools.
9:30 Major Munson, M. C.—Conference: The Training of Medical Officers for Field Service.

Digitized by Google

1 Lieut. Col. Morrison, Infantry—Conference: Organization.
3 Major Munson, M. C.—Conference: General Sanitary Organization for War.

Tuesday, April 2.

9 Major Walker, C. E.—Conference: Maps and Their Varieties; Scales and Their Uses; Conditions Making for Accuracy and Otherwise; Scales and Distances in Relation to Solution of Problems.
10:45 Major Munson, M. C.—Conference: Sanitary Dispositions in Marching Columns.
1 Lieut. Col. Morrison, Inf.—Conference: Marches.

Wednesday, April 3.

8 Major Walker, C. E., Conference, followed by map reading on the terrain.
1 Lieut. Col. Morrison, Inf.—Conference: Battles.
3 Major Munson, M. C.—Conference: The Sanitary Service on and Near the Firing Line.

Thursday, April 4.

8 Major Walker, C. E.—Conference, followed by exercises in pacing, use of instruments and preliminary work in sketching.
1 Capt. Pierce, 13th Inf.—Conference: Modern Firearms, and Their Influence on the Field Work of the Medical Department.
3 Major Munson, M. C.—Conference: Stations for Slightly Wounded; Ambulance Companies.

Friday, April 5.

8 Major Walker, C. E.—Continuation of work of April 4. Problem No. 1: Visibility of Points.
1 Lieut. Col. Morrison, Inf.—Conference: Administration and Supply.
3 Major Munson, M. C.—Conference: Field Hospitals; Reserve Sanitary Supplies.

Saturday, April 6.

8 Major Walker, C. E.—Continuation of work of April 5. Problem No. 2: Zones of Probable Casualty.
(No afternoon exercises.)

Monday, April 8.

8 Major Walker, C. E.—Continuation of work of April 6. Problem No. 3: Security of Relief Stations.
1 Lieut. Col. Morrison, Inf.—Conference: Staff Duty.
3 Major Sayre, 9th Cav.—Lecture: War Games; Tactical Walks and Rides.

Tuesday, April 9.

8 Major Walker, C. E.—Preliminary Road Sketch.
1 Lieut. Col. Morrison, Inf.—Conference: Supply; Lines of Communication and the Base.
3 Major Munson, M. C.—Conference: The Sanitary Formations of the Line of Communications and the Base.

Digitized by Google

Wednesday, April 10.

9 Major Munson, M. C.—Conference: The Solution and Preparation of Sanitary Map and Field Problems.

10:45 Capt. Eltinge—Lecture: The Tactical Use of Cavalry.

1 Major Sayre, 9th Cav.—Conduction of War Game: Reinforced Brigade. Class as observers.

Thursday, April 11.

8 Major Walker, C. E.—Record Road Sketch.

1 Continuation of morning's work.

Friday, April 12.

8 Major Walker, C. E.—Preliminary Position Sketch.

1 Major Munson, M. C.—Problem No. 4. Solution of a field problem with a detached battalion. Enlisted personnel drawn from Ambulance Company No. 3.

Saturday, April 13.

8 Major Walker, C. E.—Record Position Sketch.

1 Continuation of morning's work.

Monday, April 15.

9 Major Russel, Sig. Corps—Conference: Field Lines of Information.

10:45 Capt. Eltinge, 15th Cav.—Lecture: Panic in War, with special relation to the work of the Medical Department.

1 Major Munson, M. C.—Problem No. 5. Field problem with two detached battalions. Enlisted personnel drawn from Amb. Co. No. 3 and Post Hospital.

Tuesday, April 16.

8 Capt. Edwards, 5th Inf., and Major Munson, M. C.—Terrain Exercise: The Regiment in Retreat and in Defensive Action.

2 Capt. Thomason, M. C.—Paper and Conference: The Organization, Management, Duties, Training, etc., of the Sanitary Service with a Newly Raised Regiment.

Wednesday, April 17.

9 Lieut. Col. Hall, O. N. G.—Paper and Conference: The Management, Duties, Difficulties, and Special Methods of the Sanitary Service on Riot Duty.

1 Major Munson, M. C.—Problem No. 6. Field Problem with a detached regiment. Enlisted personnel drawn from Amb. Co. No. 3 and Post Hospital.

Thursday, April 18.

8 Major Sayre, 9th Cav.—Direction of War Game: The Reinforced Brigade. Class participates with student officers of School of the Line in solution of problem.

1 Capt. Bevans, M. C.—Paper and Conference: The Personnel, Transportation, Organization, Duties, Training, Supplies, etc., of Ambulance Companies. Discussion opened by Capt. Jones, M. C.

Digitized by Google

Friday, April 19.

9 Major Bispham, M. C.—Paper and Conference: The Organization, Personnel, Supplies, Transportation, Training and Use of Field Hospitals. Discussion opened by Major Patterson, M. C.

1 Major Munson, M. C.—Problem No. 7. The preparation of a practical field problem.

Saturday, April 20.

8 Major McAndrew, 8th Inf., and Major Munson, M. C.—Terrain Exercise: The Reinforced Brigade in the Attack.

(No afternoon exercises.)

Monday, April 22.

8 Major Munson, M. C.—Problem No. 8. Field Problem with the reinforced brigade. Enlisted personnel drawn from Amb. Co. No. 3 and Post Hospital.

2 Major Munson, M. C.—Conference: The Solution of Map Problem No. 7.

3 Capt. McMaster, 5th F. A.—Lecture: The Tactical Use of Artillery.

Tuesday, April 23.

9 Major Dean, M. C.—Paper and Conference: The Sanitary Service with Independent Cavalry. Discussion opened by Capt. Eltinge, 15th Cavalry.

1 Major Munson, M. C., and Capt. McMaster, 5th F. A.—Problem No. 9. Field Problem with the reinforced brigade. Enlisted personnel drawn from Amb. Co. No. 3 and Post Hospital.

Wednesday, April 24.

8 Major Sayre, 9th Cav.—Direction of War Game: The Reinforced Brigade. Class participates with student officers of School of the Line in solution of problem.

1 Major Clayton, M. C.—Paper and Conference: The Organization, Function, Management, Personnel, Supplies, etc., of Evacuation Hospitals. Discussion opened by Major Ekwurzel, M. C.

Thursday, April 25.

8 Capt. Eltinge, 15th Cav., and Maj. Munson, M. C.—Terrain Exercise: The Infantry Division on the Retreat and in the Defense.

2 Major Patterson, M. C.—Paper and Conference: The Sanitary Service of the Line of Communications. Discussion opened by Major Lewis, M. C.

Friday, April 26.

9 Major Lewis, M. C.—Paper and Conference: The Sanitary Service of the Base. Discussion opened by Lieut. Col. Hall.

1 Major Munson, M. C.—Problem No. 10. Map Problem: The Infantry Division on the Defense.

Digitized by Google

Saturday, April 27.

8 Lieut. Col. Morrison, Inf.—Direction of War Game: The Infantry Division. One side. Class participates.
(No afternoon exercises.)

Monday, April 29.

8 Capt. Eltinge, 15th Cav., and Major Munson, M. C.—Terrain Exercise: The Infantry Division in the Attack.

2 Major Munson, M. C.—Problem No. 11. Map Problem: Disposition of Sick and Wounded in Large Commands.

Tuesday, April 30.

9 Lieut. Col. Kuhn, C. E.—Lecture: Impressions of a Combatant Officer Concerning the Sanitary Service of the Japanese Army.

10:30 Major Munson, M. C.—Conference: Solution of Map Problems Nos. 10 and 11.

1 Major Munson, M. C., and Capt. Fiske, 28th Inf.—Problem No. 12. Field Problem with the Division. Enlisted personnel drawn from Amb. Co. No. 3, Post Hospital and combatant organizations of post.

Wednesday, May 1.

9 Major Ekwurzel, M. C.—Paper and Conference: Hospital Ships; General Hospitals. Discussion opened by Major Clayton, M. C.

1 Capt. Halstead, 6th Inf.—Lecture: The Laws of War on Land, in Relation to Sick and Wounded, and the Sanitary Personnel, Matériel and Formations.

3 Major Munson, M. C.—Problem No. 13. Transportation problem with the division.

Thursday, May 2.

8 Major Sayre, 9th Cav.—Direction of War Game: The Field Army. One side. Entire class participates.

1 Capt. Halstead, 6th Inf.—Problem No. 14. Application of subject of May 1st.

2 Major Munson, M. C.—Conference: Solution of Problem No. 13.

3 Major Munson, M. C.—Conference: Medical Statistics in Relation to Epidemiology and Geography of Diseases and Their Bearing on Military Purposes.

Friday, May 3.

9 Major Munson, M. C.—Conference and assignments on Problem No. 15: The Planning of the Sanitary Organization, Equipment and Supply of an Expeditionary Field Force, with its Service of Evacuation.
(No afternoon exercises.)

8 Major Munson, M. C., and Capt. Halstead, 6th Inf.—Problem No. 16. Field Problem in the policing of the battlefield at night. Enlisted personnel drawn from Amb. Co. No. 3, Post Hospital and combatant organizations of post.

Digitized by Google

Saturday, May 4.

(No exercises.)

Monday, May 6.

9 Major Munson, M. C.—Conference: The Solution of Problem No. 16.

10:30 Major Munson, M. C.—Conference: The Civil Sanitary Function of the Medical Department in Occupied Territory; with assignments to Problem No. 17, relating to the same subject.
(Afternoon occupied in solution of Problems 15 and 17.)

Tuesday, May 7.

9 Major Munson, M. C.—Lecture and Conference: The Effect of Certain Military Epidemics upon the Political History, Geographical Expansion and Military Policy of the United States.

10:30 Capt. Halstead, 6th Inf.—Conference: Solution of Problem No. 14.
(Afternoon occupied in solution of Problems 15 and 17.)

Wednesday, May 8.

9 Major Munson, M. C.—Lecture and Conference: The Prevention of Camp Diseases in Newly Raised Commands, Considered from the Administrative Standpoint.
(Afternoon occupied in solution of Problems 15 and 17.)

Thursday, May 9.

9 Major Munson, M. C.—Lecture and Conference: Military Absenteeism in War, with Special Reference to the Part Played by the Medical Department Therein.
(Afternoon occupied in solution of Problems 15 and 17.)

Friday, May 10.

(Forenoon occupied in solution of Problems 15 and 17.)

2 Major Munson, M. C.—Conference: The Solution of Problem No. 15.

Saturday, May 11

9 Major Munson, M. C.—Conference: The Solution of Problem No. 17.

(*Conclusion of Course*)

Colonel J. C. Minor, Chief Surgeon, N. G. Arkansas, has proposed to furnish THE MILITARY SURGEON each month with one or more practical problems. Colonel Minor suggests that it would be to the manifest benefit of the service if these problems were solved by medical officers of the Organized Militia and were then sent by mail to their respective chief surgeons for correction. It is thought that in many states this plan might be well adopted.

The questions furnished by Colonel Minor for the present month are as follows:

Digitized by Google

1. You have received an order from the Adjutant General of your state to report for ten days' duty at target range.

The order is G. O. No. 10, A. G. O. Ark. N. G.—Little Rock—Feb. 20, 1912.

(a) What is your first step—what reports, etc.?

(b) What supplies will you need?

(c) How will you get them?

(d) On breaking camp what steps are necessary on your part to completing your duties?

(e) What reports? What disposition will you make of property and supplies?

2. What is meant by EXPENDABLE and NON-EXPENDABLE property?

3. In case of discovery of contagious disease what would you do?

Among other special qualifications required of a medical officer at a recruit depot a fully developed sense of humor is a valuable asset.

At Columbus Barracks a green and docile recruit from the mountains of Tennessee had been persuaded by the enthusiastic throat man that a double tonsillectomy was necessary. Having so many such cases he is especially expert in removing tonsils and a new assistant requested a chance to gain experience under his guidance. The tonsils were unusually friable, the forceps pulling loose every time traction was made and finally the throat man was called upon to remove some remaining pieces and to finish the operation.

The recruit was fully imbued with a proper sense of the stoicism a brave soldier should display and was the ideal patient that all soldiers are. Upon the final satisfactory completion of the operation he heaved a sigh of relief and with a rather forced smile confidingly remarked: "Say, Doc, youse fellows done a lot of whittling on me, didn't you?"

HEADQUARTERS FOURTH REGIMENT INFANTRY,
Fourth Brigade, National Guard of Pennsylvania,
ALLENTOWN, PA., *January 7th*, 1912.

GENERAL ORDERS,
No. 1.

I. It becomes my sad duty to announce the sudden death of Major Morris F. Cawley, of the Medical Department of the National Guard of Pennsylvania and assigned to this Regiment as Surgeon, which occurred January 6th, at 9 o'clock, P. M.

Major Cawley was an enthusiastic, conscientious medical officer of the National Guard, entering the service as a private in Co. D, 4th Inf., June 21,

Digitized by Google

1878, appointed Assistant Surgeon, Nov. 11, 1888, reappointed January 1, 1891, and December 18, 1895; appointed Major and Surgeon, Medical Department and assigned to the Regiment December 18, 1899; reappointed December 24, 1904, and November 18, 1909.

In the service of the United States in war with Spain he was commissioned Assistant Surgeon of the 4th Regt. Inf. Penna. Vols., May 5, 1898, and Surgeon, May 12, 1898. In this service he was stricken with a malignant type of typhoid fever at Porto Rico and was a sufferer for many months at St. Peter's Hospital, Brooklyn., N. Y., after the close of the war.

In the service of the National Guard he responded to every call for duty at great personal sacrifice to his interests in his professional work at home. His death is therefore a distinct loss to the Medical Department and to this Regiment with which he was associated for so many years.

II. The funeral will take place at Allentown, on Thursday afternoon, at 2 o'clock P. M. The officers of the Regiment are invited to attend, assembling at Regimental Headquarters in dress uniform with side arms and wearing great coats, at 1.30 P. M., when they will proceed in a body to the funeral. As a mark of respect to his memory the officers will wear the usual badge of mourning for thirty days from this date.

By order of COLONEL O'NEILL.

(Signed) HENRY A. REMEY, ESQ.,
Adjutant.

Digitized by Google

E. A. ARMSTRONG MFG. CO.

315-321 Wabash Avenue, CHICAGO

(Opposite the Auditorium.)

Makers of the

Finest Uniforms and Equipment

For Officers of the Army and National Guard

Write for Catalogue F.

THE ARMSTRONG UNIFORMS. TRADE MARK REGISTERED CHICAGO.

MADE ON HONOR

Greater Speed—Greater Accuracy—Greater Efficiency—are the logical results of installing the

Underwood Typewriter

Exclusive Underwood features make possible the most important labor-saving systems of modern accounting.

The ever growing demand puts the annual sales of Underwoods far ahead of those of any other machine—making necessary the largest typewriter factory and the largest typewriter office building in the world.

Such a demand from business men everywhere is unquestionable evidence of the practical mechanical superiority of

"The Machine You Will Eventually Buy"

Branch Offices in All Principal Cities

UNDERWOOD TYPEWRITER CO., Inc. - - Underwood Building, New York

Digitized by Google

The Military Surgeon

Vol. XXX. APRIL, 1912 No. 4

ORIGINAL ARTICLES.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

THE MEDICAL DEPARTMENT OF THE ARMY IN THE CIVIL WAR.

The Battle of the Wilderness.

By Captain LOUIS C. DUNCAN, Medical Corps, U. S. Army.

OUTLINE.

Preface.
General Situation.
I. Organization of the Medical Department.
Regimental.
Ambulance Corps.
Field Hospitals.
Reserve Supplies.
Transportation of Wounded to Advanced Base.
II. March to the Field.
III. Service of the Front.
Ambulance Corps.
Field Hospitals.
IV. Service of the Rear.
Comments.

Digitized by Google

PREFACE.

BURKE was wont to condemn the proneness with which men when confronted with a difficult problem, consult their own invention rather than the experience of the past. Rightly considered, both are extremely useful and together they are the principal factors in progress.

By studying the past history of any line of human action, we learn what measures were successful, and, just as important, what failed.

Invention adapts successful measures to present conditions, and, when experience fails, discovers new ones, to be in turn submitted to the test of experience.

The history of the Medical Department of the United States Army during our great Civil War is particularly rich and valuable in experience that may be applied to the tactical problems of sanitary troops today. It may be safely said that sanitary tactics of the battlefield did not exist in the period immediately preceding the war.

A steady evolution in this work progressed, from the pitiful absence of provisions for the wounded at Bull Run, to the splendid organization and work of the Medical Department in the great closing campaigns of the war. The system of caring for the wounded, devised by Letterman and carried out by McParlin and others, was the basis of all systems now in use in the great armies of the world. More than that, and contrary to the common opinion, this system was developed by the spring of 1864 to a point which left little to be desired, and which more modern devices have not materially changed. The ambulance and field hospital organization that crossed the Rapidan with Grant's Army was in all essential features the ambulance and field hospital organization that would take the field in the event of war tomorrow; and we shall be extremely fortunate if we have an equipment even approaching that of the Army of the Potomac at that time. We did not have anything like it in 1898.

Students of military science have studied all the great battles, not only of the Civil War but of all wars of recent and even of ancient times. Napoleon's campaigns have been dissected to the last detail; Marlborough has afforded valuable lessons; Cæsar

Digitized by Google

and Hannibal are not too ancient for profitable study by the line officer.

The tactics of sanitary troops appear to me no less worthy of study.

If changed conditions have not rendered the campaigns of Napoleon useless to the line student, surely they have not done so with the campaigns of the Civil War for students of sanitary tactics.

I choose the Battle of the Wilderness for description because at that time the development of the Letterman system of ambulance corps and field hospitals was practically complete. Now for the first time in a great battle every division of the Army of the Potomac had its complete medical personnel and equipment and marched on the field fully prepared for all events. At Antietam the medical organization was complete in some divisions only; at Gettysburg the ambulance system worked admirably, but the field hospitals were held back with the train far in the rear and not allowed to come up till after the battle.

But at the Wilderness everything was ready, McParlin might truthfully have said, "To the last gaiter button." A fair test of the machine and its operation could at last be made.

How it worked I shall attempt to relate. If the narrative proves less interesting to the reader than its unearthing from the records of the war was to me, the fault lies with the narrator, not with the subject. Napier's well-known lines on his epic of the Peninsular War might well be quoted. The theme—the creation of a system of care for the victims of war—is worthy a more facile pen than mine.

GENERAL SITUATION.

During the last days of April, 1864, General Grant had the Army of the Potomac collected about Culpepper, facing the Rapidan River, across which in intrenched lines lay the still formidable Army of Northern Virginia. Grant had three Infantry Corps; the Second, Fifth, and Sixth; numbering with the artillery about 73,000 men. The Cavalry Corps of 12,000, and the Ninth Corps of 19,000, which came up later but took little part in the conflict, will not be given more than a brief notice.

Digitized by Google

A study of the sanitary tactics of the battle is much simplified by considering only the three corps that really did the work.

They consisted of eleven divisions, (the Sixth having but three) thirty-two brigades, about 180 regiments. A regiment consisted of rather less than 400 men, a division of about 7,000. Lee had about 20,000 less. Grant's objective was a position between Lee's army and Richmond. So the Army was shifted to the left and pushed across the river into the Wilderness; without opposition by Lee. But no man of all that great army doubted that most desperate fighting would come, and soon.

The Army had never crossed that river line except to face a line of fire, and now it was lead or driven on by a silent, determined man whom no death list staggered, no check halted for long. Death waited in the Wilderness but the Army must go on.

To prepare it for this last grapple with the Confederacy all had been done that human foresight could devise; the only fault to be found with the equipment was that it was excessive. So it was reduced to a minimum; practically all tentage and baggage were cast aside.

Ammunition wagons, light hospitals, and ambulances alone followed the divisions across the fords at midnight on May 3d, 1864. The bloody battle of the Wilderness was to be accompanied by the best care of the wounded that the world had ever seen.

When the Army of the Potomac crossed the Rapidan its medical equipment was complete. Every corps had its ambulance company and every division had its field hospital. That they met the demands of the terrible days to come proves their sufficiency. The Ambulance Corps of the Army on May 1st numbered 60 officers and 2,300 men. For transportation there were 609 ambulances and 266 army wagons; with 3,295 draft animals. All these were in excess of the regulation allowance.

For shelter there were 294 hospital tents, holding eight patients each or 2,300 patients.

Deducting the ambulances of the Cavalry Corps, it appears that more than 500 ambulances crossed the river with the Army. A little calculation shows that there was one ambulance for each 150 men.

Of these one-half followed the divisions, the other half remained with the supply trains but was always within reach. But those with the troops afforded one for 300 men while our

Digitized by Google

present allowance is but one to 400 men. Letterman's regulations allowed three ambulances to a regiment, of 500 men or more. General Sherman on the march to Atlanta, although ordering every tent and trunk thrown out, allowed two ambulances to a regiment (very small), and General Meigs quotes Grant as estimating 180 ambulances for a corps of 32,000 men. The Army also had an excellent field hospital equipment which will be described in detail later.

The total number of medical officers on May first was 699. All these numbers refer to officers and men actually present for duty, and to serviceable transportation. Four hundred and thirty-three medical officers crossed the river with the infantry columns; add to these the sixty officers of the ambulance corps and there is one sanitary officer for each 150 men.

I. ORGANIZATION OF THE MEDICAL DEPARTMENT.

Regimental Organization.

At the beginning of the war there was no care of the wounded except that afforded by regimental surgeons, ambulances, tents, and supplies. The volunteers clung to their idea of regimental hospitals and only gave them up after years of effort, orders, and finally law.

Gradually they gave up their hospitals, ambulances and supplies.

The last surrender took place in the Army of the Potomac when it was stripped for the final campaign to Richmond. The Rapidan was a Rubicon to regimental hospitals as well as to some other institutions.

Each regiment had by law a surgeon and an assistant surgeon.

Before an engagement these officers were drawn on to man the field hospital, which had no complete permanent personnel. The brigade surgeons were also detailed for this purpose. However, one surgeon was required to remain with the regiment and these surgeons formed the first line of aid. They gathered at sheltered spots behind the firing line, by brigades in the latter years of the war, and formed aid, dressing, and ambulance stations, all in one. This single station was no doubt suitable for the days of short

Digitized by Google

range guns. These stations were from 300 to 500 yards behind the firing line, at points that were under cover and could be reached by ambulances. Supplies were obtained from the medical knapsacks of the regiments, and from the ambulances coming to the stations. Regimental assitance had diminished to first aid and partial collection of the wounded; but the ambulance corps did most of the latter. But all the first aid given was that of the regimental personnel; the ambulance corps was in reality a quartermaster organization, under the direction of the Medical Director of the Division.

Ambulance Corps Organization.

The Letterman order of August 2nd, 1862, made by McClellan in spite of the War Department, had been reiterated by Meade August 24th, 1863, and was finally enacted into law by Congress, with little change, March 24th, 1864. This was the consummation; a degree of comparative perfection had been reached. The Ambulance Corps was complete in organization, personnel, and equipment. Its officers, however, were not medical officers, but line officers detailed to the Quartermaster Department; and it was a part of the quartermaster transportation; but under the control of the Medical Director. This feature was not ideal but seems to have worked well. The principal objection is that the ambulance officers could render no aid to the wounded.

The ambulance company of a corps—20,000 to 25,000 men—consisted of the following:

One Captain	1
One 1st Lieut. to each division	3 or 4
One 2nd Lieut. to each brigade	9 to 12
One Sergeant to each regiment	40 to 60
Three men to each ambulance	400 to 500
Two men to each wagon	6 to 8

The total is 13 to 17 officers and 500 to 600 enlisted men to a corps, a little larger than our modern division.

The transportation was:

Two army wagons to a division	6 to 8
One to three ambulances to a regiment	140 to 180
One cavalry forge to a division	3 to 4

Digitized by Google

Total, 150 to 190 vehicles to a corps; 45 to 50 to a division.

A typical division ambulance company was that of the First Division, Second Corps, 7,000 to 8,000 men.

5 officers.	2 army wagons.
21 sergeants.	1 forge.
230 men.	45 ambulances.

Ambulances were not confined to their own divisions; the commander of the ambulances of a corps could use all the ambulances wherever needed. The ambulances were all two-horse vehicles; they carried as many sitting patients as ours of today, but, as a rule, only two reclining patients. The four litter ambulance of General Rucker had not yet come into general use. This personnel and equipment may be compared with ours of today.

Field Hospitals.

A field hospital was organized for each division (6,000 to 8,000 men). The personnel and equipment depended on the size of the division, so it was not the same in all divisions, but was about as follows:

Three permanent medical officers.
Thirty-six enlisted men.
Six to eight wagons.
Twenty-five hospital tents.

With each division there were also a number of contract surgeons; how many, I am unable to learn.

There were about fourteen army wagons and four medicine wagons of a special type to each division. Two wagons carried the tentage, two carried cooking utensils, rations, and supplies, and ten carried the brigade and regimental supplies; all these were available for the field hospital.

When the Army crossed the Rapidan a light field hospital in about six wagons followed each division; the remainder of the wagons were with the great supply trains. There is no intimation in any report that I have seen that these hospitals were inadequate. There was, of course, a shortage of clothing and tentage;

Digitized by Google

fortunately the weather was fine throughout the battle. Many of the wounded had only shelter tents for protection, and many others had but the shade of the trees.

The division hospital was based on the size of the division and the number of regiments in it. A good example is the hospital of the First Division, Sixth Army Corps.

Four medicine wagons, Autenreith.
Seventeen army wagons, six-mule.
Twenty-four hospital tents.
Thirty-four attendants.

Eight wagons carried the regimental supplies (twenty regiments); four the brigade supplies; and five the field hospital. The four medicine wagons were assigned to the four brigades but also formed part of the field hospital. In fact, the hospital could be divided into brigade sections. The Medical Director of the Army says that one of these hospitals could be set up or taken down and packed in forty-five minutes. An official circular directed: "When practicable the hospitals of the different divisions should be located near together—each one, however, to be kept perfectly independent and distinct in its management." The division hospitals were pitched and operated in brigade sections, with an operating table and a medicine wagon for each.

The Cavalry Corps had no division hospitals but had a corps hospital of 22 tents, similar to the division hospitals of infantry.

This hospital, however, never accompanied the cavalry on the great raids and did not accompany it in the Wilderness Campaign.

When the Cavalry Corps broke camp at Brandy Station only a few ambulances were taken along, with light supplies. The field hospital was packed and shipped back to Alexandria, where it remained, till about May 15th, when it was forwarded to Fredericksburg. It continued to hover around the field of operations and was in reality an evacuation hospital. The Cavalry Corps picked up wagons of all kinds on the march, but carried a few ambulances. One of the main reliances was the ammunition wagons, which, as a medical officer noted, were always emptied just as they were needed. It does not appear that there were

Digitized by Google

many casualties among the cavalry in the Battle of the Wilderness.

The Engineer battalions, Reserve artillery, and General Patrick's provost guard also had their supplies, ambulances, and hospital tents.

The Ninth Corps, which did not become a part of the Army of the Potomac until May 25th, was very poorly provided with transportation of all kinds and had almost no divisional medical equipment. It was in about the same situation as were all the divisions two years earlier.

Its wounded, not many, were largely cared for by the other divisions.

Reserve Supplies.

In addition to the supplies carried by the divisions there was an army reserve supply train of thirty-five wagons, with the main supply trains. By 5 p. m. on May 5th this train was near the Old Wilderness Tavern, the center of the Union lines, ready to fill requisitions. The medical officer in charge of this train seems to have been disappointed that after all his exertions in getting his train to the front no one called on him for supplies. The first day's fighting just about measured the capacity of the hospitals; the second day called for all his bedding and clothing; his general supplies were requisitioned for the great train of wounded, as well as to replenish the wagons and ambulances for the next conflict. There was also a considerable amount of medical supplies and stores carried on five wagons belonging to the Sanitary Commission. These wagons carried chiefly delicacies of food, clothing and bedding.

The whole amount of medical supplies carried with the Army was calculated to be sufficient for ordinary needs for thirty days, and eight days' supplies for 20,000 wounded in addition. The wounded in large numbers were to be evacuated to the rear within eight days.

Provision was also made for sending large quantities of supplies, (bedding, clothing, dressings, medicines, and special foods) from Alexandria to the evacuation hospitals. Cars stood on the tracks, loaded and ready to start at a moment's notice.

Digitized by Google

The train of reserve supplies proved a necessity; the number of wounded counted on—20,000—was far exceeded before thirty days had passed. In fact, it was nearly if not quite doubled. The first ten days of the campaign left more than 25,000 wounded to be cared for, besides sick and some of the enemy's wounded.

Transportation of Wounded to Advanced Base

Depot hospitals had heretofore been established, sometimes on or near the field, sometimes further back or at the advance base.

In this campaign they had been at Brandy Station about ten miles north of the Rapidan. But when the Army crossed the river these hospitals were broken up and the supplies shipped to Alexandria.

Still it seems to have been the intention to retain this point, or Rappahonock Station, as the advance base for a time. Instead of keeping medical supplies there, hospital trains were waiting and a large quantity of supplies were held in readiness by the Medical Supply Officer at Alexandria, but six hours to the rear. From Alexandria these supplies could be quickly forwarded, either to Brandy Station on the right flank of the Army, or to Fredericksburg on the left.

No provision was made for tentage, however, at either place, and when the wounded did reach Fredericksburg it was necessary to utilize buildings of all kinds. From either place the wounded could be readily evacuated to Washington and the North. Hospital trains had been especially devised for the Orange and Alexandria Railway; these trains of twelve cars carried from 300 to 400 patients, in comfortable bunks. Formerly the wounded had been carried in freight cars bedded with straw. From Fredericksburg there was a short railway to Aquia Creek, from that point fine hospital boats carried the wounded to Washington. The only gap in the line was that part between the field hospitals and the depot (evacuation) hospitals. There were stretchers and ambulances at the front, trains and boats in the rear; but for this mid section of the route there was neither personnel nor equipment.

Digitized by Google

Empty supply wagons and the division ambulances (improperly) were to be used. The service proved unsatisfactory as will be seen.

II. MARCH TO THE FIELD.

The movement began with the first moments of May 4th, 1864; the divisions and corps, the reserve artillery, and immense trains moved out at midnight without confusion or delay and poured across the river into the Wilderness. Alexander bears witness that among Grant's great qualities was one of making his battles come off on time.

Hancock's (Second) Corps on the left, crossing at Ely's Ford, followed the Ely's Ford Road and reached Chancellorsville by nine in the morning, where it went into bivouac for the rest of the day. Warren's (Fifth) Corps on the right, crossing at Germanna Ford, followed the plank road and reached Old Wilderness Tavern in the afternoon, going into bivouac there. Sedgwick's (Sixth) Corps followed the Fifth Corps along the Germanna Plank Road and bivouacked for the night about two miles south of the Ford. All the corps were now on one road leading to the Southeast, with the Second Corps in advance and the Sixth Corps in the rear.

Although the wagon trains had been reduced they still numbered more than 4,000 wagons and formed a column that on a single road would have extended more than seventy miles. The trains crossed on the lee side of the Army, at Culpepper Mine and Ely's Fords, not being all over till the evening of the fifth. They moved slowly on to Chancellorsville where they remained until the eighth.

When the Army marched out at midnight each division was followed by one-half its infantry ammunition train, one-half its ambulances, and a flying field hospital. The only other transportation were a few light spring wagons with the various headquarters, about fifteen to each corps. The remaining ammunition wagons, ambulances and hospital wagons were with the great supply trains, about five miles away.

This was an improvement on Gettysburg, where everything was kept far in the rear. Each soldier carried fifty cartridges and

Digitized by Google

three days' rations. The supply trains carried ten days' rations and three days' forage.

The weather was fine and the roads good; the enemy offered no opposition and the seasoned troops made the fifteen miles' march without fatigue. On the evening of the fourth all were confident and joyful in the bivouacs, as though Fredericksburg and Chancellorsville had never been inscribed on their colors. But death lurked in every ravine and peered from every thicket of the Wilderness.

More than two thousand of these men were to leave their bones on the field, twelve thousand more were to be wounded, besides three thousand missing, many of whom were killed or wounded. When the Army took up the march for Spottsylvania, three days later, almost one man out of every four was missing from the ranks.

III. SERVICE OF THE FRONT.

Ambulance Corps.

When the battle began, about eight on the morning of the fifth, the ambulance sections of all the divisions were ready for the work.

The men were vigorous, the animals in good physical condition, and all the material was complete. Officers and men were rested and it is fortunate that they were so, for they had little rest again, either day or night, for ten days.

First aid and collection of the wounded differed somewhat in the different divisions; Billings deemed the method of the Fifth Corps best. Stretcher bearers followed the lines closely and often displayed great heroism in carrying off the wounded. Any temporary advance or lull in the combat was promptly taken advantage of. There was no thought of waiting till the battle was over, or even until night. The bearers removed the wounded to sheltered spots called depots for wounded, or ambulance pickets, from three to five hundred yards behind the firing line. There was no Hospital Corps at this time, unless one should call the hospital stewards a hospital corps.

The sergeants and men of the Ambulance Corps were detailed

Digitized by Google

from the line. Some hospital stewards accompanied the bearers in collecting the wounded and the regimental surgeons, stewards, and orderlies did the work of the aid or dressing stations.

In the Wilderness these stations could be established very close to the firing line, even for that period. In the Second and Sixth Corps there was a station for each brigade, in the Fifth one for each regiment (about 400 men). The ambulances were collected at an ambulance station further back; usually all the division sections in one park, and near the field hospitals. Two or three ambulances were kept ready at the advance station; when sufficient wounded had accumulated these ambulances were loaded, moved to the field hospital, unloaded, and returned to the main ambulance station. Thus few ambulances were exposed at one time. At the main ambulance station there was a medicine wagon, and dressings were carried to the front by the ambulances.

It was laid down that the stations were to be established at points to which ambulances could come forward.

The officers of the Ambulance Corps directed the work of the bearers as well as of the ambulances. Temporary dressings only were applied at these stations and temporary medicines given. No operations of any importance were undertaken.

In this battle the distance from the advance stations to the field hospitals averaged about one and a half miles. The ambulances followed by-roads, as a rule, leaving the main roads free to troops and ammunition wagons.

The fighting began early on the fifth but was not general and severe until about noon. Many wounded straggled back to the hospitals. McParlin estimated this number in general as about ten to twenty per cent of the whole. Of course the poorer the ambulance service the larger the per cent of wounded not (apparently) requiring transportation. With no ambulances whatever fifty per cent of the wounded would probably manage to reach the field hospitals. But this number should by no means be used as a basis for estimating necessary ambulances. Many wounded would injure themselves in this way; worse, a large number of able-bodied men would leave the field under the pretext of assisting the wounded.

Digitized by Google

The number brought in on this day was: of the Second Corps, 600; of the Fifth Corps, 1,235; of the Sixth Corps, 1,000; total, 2,835.

Twice this number was brought in on the second day and night. The total number of wounded cared for in the two days was 8,300, as estimated by McParlin. The ambulances of the Fifth and Sixth Corps traveled fifty miles on the second day, and this was entirely in collecting; no wounded were sent to the rear until later. It is apparent that in a battle like the Wilderness one ambulance to 150 men was about the proper allowance. Every wounded man that could be found or safely reached was brought off the field promptly. A considerable number of wounded were too near the enemy's pickets to be reached and many could not be found in the thickets. About two hundred were estimated to have perished in the fires that burned along the front of the Second Corps on the afternoon of the second day. Several hundred of the enemy's wounded were also brought in.

The ambulance men had little rest on these two days and nights. On the 7th they found time to search the field for blankets and shelter tents. They brought in over 4,000 of these useful articles, sorely needed in the hospitals, where clothing and shelter were the only supplies short.

The ambulances of each Army Corps acted as a unit in collecting the wounded. Some extracts from the report of the chief ambulance officer of the Fifth Corps will throw additional light on ambulance work. This corps on May 1st numbered 24,423 officers and men, in four divisions, 11 brigades, 57 regiments and nine batteries.

The Ambulance Corps consisted of 17 officers and about 650 men.

In the ambulance train there were 176 ambulances, 10 medicine wagons, 58 army wagons, and four field forges. Of animals there were 524 horses and 349 mules. During the campaign six enlisted men were killed and twenty wounded; nine were taken prisoners. Two horses were killed, sixteen wounded and three captured. The ambulance train includes hospital wagons.

On June 1st this army corps numbered 19,321—almost the same as one of our modern divisions. The captain of the ambulance corps may be compared with the director of ambulance companies of a modern division.

Digitized by Google

* * * Report of Capt. Wm. F. Drum, 2nd Inf., Chief Ambulance Officer, Fifth Army Corps, from May 1st to June 30th, 1864. * * *

HEADQUARTERS, FIFTH ARMY CORPS, *July 10th*, 1864.

To Surgeon John J. Milhau, U. S. Army.

Medical Director, Fifth Corps.

SIR: I have the honor to submit a brief report of the operations of the Ambulance Corps of the Fifth Army Corps, from the commencement of the present campaign till June 30th, 1864.

On the march but a portion of the ambulances accompanied each division, the majority with the heavy portion of the trains (hospital trains) being generally ordered either in rear of the corps, or on some road that would not interfere with the marching of troops. * * * A portion of the hospital train was several times detached and sent to join the main train of the Corps, but after each battle the whole train was brought to the front. In all the battles the principal in the management of the train has been the same—that is, the ambulances have been sent where they were most needed without reference to any particular division. If any of the divisions suffered much more than the others the majority of the ambulances in the corps were used in transporting the wounded of that division. The next day some other divisions might suffer most, in that way the work was in the end about equal.

At the commencement of a battle I have generally parked my whole train of ambulances (176) at some central point, under charge of an officer.

I would then send a few ambulances as near as possible to the line of battle of each division; * * * as fast as the ambulances at the front were loaded and sent to the hospital, the officer in charge of the main park would send others to take their places; in this way placing the whole train at the disposal of the division most in need.

In the disposition of the officers, I placed one in charge of the main park, one or two to superintend the loading at each division, and the remainder to superintend the removal of the wounded from the field to the ambulances. It was also sometimes necessary to have an officer at the hospital to expedite the unloading. * * *

Owing to the difficulty in procuring forage, and the severe work they were subjected to, some of the teams were much reduced, and a few of the animals were lost; but not an army wagon was abandoned and but four ambulances. These were left on the road, having broken down and there was no time or means at hand to repair them. From the time we left Culpepper till after we crossed the Chickahominy not a particle of grain was drawn from the Corps Quartermaster for the ambulance trains. The train supplied itself when within reach of a depot, and when corn could be found in the country it was seized.

Digitized by Google

In order to keep a train foraged properly it is necessary to keep two wagons in each division train for the purpose of hauling forage.

* * * It also requires at least one wagon to carry the Q. M. property and personal effects of the ambulance officers. * * *

During the campaign the ambulance train of the Fifth Army Corps had removed over 8,000 wounded men from the field of battle to the hospital, and assisted in removing the same number and over one thousand sick to the depots to be sent North. * * *

W. F. DRUM, *Capt. and Chief Ambulance Officer, Fifth Corps.*

Yet this splendid ambulance corps is never mentioned in a report of a general officer; indeed one might read the reports of line officers without knowing that the Army had either field hospitals or ambulances. On the other hand, the report of the Medical Director of the Army for this period is the best and most complete report made by any officer of the Army.

In 1898 Colonel Greenleaf followed the plan of these organizations closely, and the Fifth Army Corps had both field hospitals and ambulance trains organized at Tampa. Unfortunately those in control of the expedition either had forgotten the experience of '61, or considered these things of lesser importance, for all wagons were left behind and all but three ambulances. So soon are lessons learned in the dear school of experience forgotten.

Field Hospitals.

On the morning of May 5th the Army was in a sort of a huge column of masses along the Germanna Ford and Orange Roads. On learning that Lee's corps were pressing on from the West to strike his column in flank, Grant, instead of pursuing the march, faced his divisions to the right and pushed them forward one or two miles in the woods to the west and south, where they formed an irregular line of battle and constructed temporary intrenchments. The line of battle advanced and was pressed back as the conflict rose and fell but did not vary much from this first established line. It was about the right distance in front of the Germanna Road to make it the fighting base of the Army. Headquarters was at the Lacy House near the Tavern, with the reserves, ammunition wagons, and hospitals on or near the road. I am unable to learn who located these hospitals.

Digitized by Google

The hospitals of the Second Corps were grouped together near the Carpenter House, an excellent location, with running water and two good ambulance roads to the front, a mile to a mile and a half away. It was in advance of the main road but interfered with no other hospital or troops.

The hospitals of the Fifth Corps were also grouped together, near a small stream which crosses the Orange Pike one mile east of the Tavern.

They were a little farther from the front than the others and on the main road, being a mile directly behind the headquarters of the Army.

Water was obtained from some excellent springs nearby and fuel was abundant everywhere. Everything was ready at this hospital an hour before the wounded began to arrive. It is worthy of note that a surgeon with attendants was stationed at the Tavern, to dress the wounded who might be straggling along the road to the rear. Between noon and nine P. M. on the fifth the hospital received, dressed, fed, and sheltered 1,235 wounded men. Also records were kept of all cases. One sees why Billings spoke so highly of the medical work of this corps.

The Sixth Corps stretched from the right of the Fifth on north to the Rapidan. It was somewhat more extended than the other corps and its division hospitals were pitched separately. The hospital of the First Division was at the Spottswood House on the Germanna Plank Road; that of the Second Division was behind the road, on Wilderness Run, near the Woodville Mine; that of the Third Division was near the Tavern.

These hospitals do not appear to have been well located; they were too near the front and that of the Third Division was on the road leading to the hospitals of the Fifth Corps, which was liable to mix the wounded unnecessarily. It appears that they should have been located back of the Germanna Road, on roads leading to Culpepper Ford.

On the evening of the Sixth when Gordon's flanking attack rolled up Pickett's Division and forced it back, some shells fell about the Spottswood House, but did little damage. That night all the hospitals of the Sixth Corps were removed and collected near McDowell's Tavern. By this time the battle had shifted to the left and one of Sedgwick's divisions was fighting in Han-

Digitized by Google

cock's line. In reality the battle was over, but no one then knew it.

By the morning of the seventh practically all the wounded were in. The influx to the Second Corps hospitals was so great that the keeping of records was impossible and a thousand or more wounded were unrecorded. The heaviest fighting on the afternoon of the sixth had been in this quarter; General Grant termed it the hardest fighting ever seen on the continent. The hospitals must have been literally swamped. No wounded were evacuated to the rear; by the morning of the seventh these eleven field hospitals contained between eight and nine thousand wounded. Fortunately the weather was fine and there was no suffering from exposure.

Billings reported later that the hospitals had been at all times supplied with everything necessary *except bedding and clothing*. This was the principal shortage reported at many field hospitals in many places.

The organization of a field hospital was that of Letterman:

One officer in charge.
One officer to provide food and shelter.
One officer to keep records.
Three operating surgeons.
Two or three assistants to each operator.
Total, twelve to fifteen officers.
About thirty-six attendants.

The first three only were permanent officers. The three operating surgeons were, as a rule, the brigade surgeons of the division. They and their assistants were temporarily detailed to the hospital before an engagement.

The majority of cases were operated on before being sent to the rear, the number of primary operations being very great. The amount of work done at these field hospitals is not apparent at a glance. A little calculation will show it to have been enormous. For example, the hospitals of the Fifth Corps attended over 1,200 wounded between noon and nine p. m. on the fifth. This gives 300 wounded for each of the four division hospitals, or 100 for each brigade section. Counting one-fourth as slightly wounded,

Digitized by Google

there were yet 75, allowing each man but eight minutes on the operating table.

We, who today in our hospitals think four or five operative cases a big day's work may have some adequate idea of the amount of work required to care for seventy-five cases in nine hours. It is true that there were no long tedious operations in those days. But there were many more operations—such as amputations, excisions, ligations and the like.

Following this battle there were 108 excisions and 560 amputations. The statistics of this battle and Spottsylvania throw an interesting light on the use of the bayonet. These two battles are generally, and rightfully considered as the most murderous of the war. The lines were very close and, more especially at Spottsylvania, hand to hand. A writer in "The Photographic History of the War" says, "The Bayonet ended what the rifle began." Surely here, if anywhere, we shall see bayonet wounds. There were 16,331 wounded recorded by McParlin from these battles. In all the two days' struggle in the Wilderness there were just four men wounded with this weapon. Probably more than that number were rendered *hors du combat* by being kicked by mules. In the five days' struggle about Spottsylvania, including Upton's charge and the long, desperate contest at the Bloody Angle, there were but fourteen bayonet wounds, an entirely negligible percentage.

When all the wounded had been collected the remaining regimental officers could also be called in to assist at the division hospitals. The chaplains usually assisted in the record office. About this time a commissary officer was assigned to each division hospital. For dressing, nursing and such work there were 36 men, more or less permanently detailed. These men were taken from the line. All the band men of the division were to assist at the division hospital, particularly at fatigue work. They proved to be of little value for this purpose, as might have been expected.

The success of the Ambulance Corps and Field Hospitals in collecting, sheltering, feeding, and dressing the wounded was truly remarkable; and in striking contrast to the appalling results of the bold and strenuous surgery of those days.

Digitized by Google

The keeping of records was not entirely successful. There were records of 7,300 wounded treated in the hospitals, and McParlin estimated that of 1,000 more wounded no records were made. It seems probable that the number unrecorded was much greater than a thousand. This I should say was due to an insufficient number of competent noncommissioned officers and other enlisted men. Thirty-six to a field hospital is manifestly not enough. Our present allowance is none too large. There seems to have been a sufficient number of officers.

The ambulance company camped near the hospital and its men assisted in pitching the tents and other work when possible.

All the work of dressing and operating was finished by the evening of the seventh. That evening General Meade ordered all the wounded collected in one great train and sent back to the railway, and to Washington. The work of loading the wagons and ambulances went on all that night.

IV. SERVICE OF THE REAR.

The weak point in the Letterman system was that there was no provision for systematic removal of the wounded from field hospital to the advance base at head of rail or water transportation. Letterman did not remain in the Service to work out this last detail, and it can hardly be said to have been worked out today. The expectation was that after the wounded had all been collected, at least a part of the ambulances could be released, and that these, with empty supply wagons returning to the base, would be sufficient. In the days of McClellan and Hooker, when the Army fought a battle and then rested for some months, this expectation was generally realized; though it failed signally when Lee pressed McClellan day after day on the Peninsula. With Grant at the head of the Army, fighting one desperate battle after another, it was bound to fail. After the Wilderness, using all the ambulances and wagons that could be spared, there was still not enough transportation; and that was not the only ill result. The ambulances that went with wounded to Fredericksburg did not get back in time for the opening struggles about Spottsylvania; and when they did get back they were stripped of their supplies, and men and animals were exhausted by seven days

Digitized by Google

and nights of continuous work Also the army wagons were unsuited for wounded men.

Billings says, "The greatest amount of suffering to the wounded has occurred necessarily during their transit from the field to the depot hospitals. Army wagons have necessarily been used, and the distance traveled has usually been ten to twenty miles; the patients on several occasions remaining from 24 to 48 hours in the wagons." The suffering arising from this management cannot be imagined. Of the wounded in one train fourteen died on the road.

On May 7th there was no fighting; that evening General Meade ordered all the wounded collected in one huge train and sent back to the railway, and to Washington. For this train supply wagons to the enormous number of 325 were emptied and turned over by the Quartermaster Department.

To these were added practically all the ambulances of the Army, 488 in number. These 813 vehicles with their attendants and the wounded able to march made a column seven miles long. Yet with this great train more than a thousand were left behind. Some of these, of course, could not bear transportation. A part of them were brought in later, some were carried away to Richmond as prisoners, very many died.

The wagons were prepared by bedding them with boughs covered with shelter tents and blankets. The wounded were divided into three classes: first, those able to march; second, those able to ride in wagons; third, the severely wounded, who were carried in ambulances. This tragic procession conveyed over 7,000 maimed and suffering men. What an argument for peace advocates would be a moving picture film of this column as it dragged along the Fredericksburg Pike that day.

To care for it there were detailed 30 medical officers, 15 stewards and 150 men. Rations, dressings, and medicines for three days were supplied. The Quartermaster Department offered every facility, without which the wounded could not have been removed.

The loading began during the night of May 7th. The ambulances were loaded with the worst cases and sent off first, accompanied by those able to march on foot. The train moved very early on the morning of the eighth and had passed Ely's

Digitized by Google

Ford, when an order came to turn back and proceed to Fredericksburg. The Army was moving southeast toward Spottsylvania and the temporary base had been shifted. The train of wounded then moved by the Pike, escorted by two small regiments, and reached Fredericksburg at 1 a. m. on the 9th; having been more than thirty hours on the road. No deaths are recorded. Fortunately the wounded were not loaded in a driving rain and the march made through mud, darkness and storm, as happened a few days later.

Meanwhile the medical supplies held ready at Alexandria (supplies for 3,000 men for seven days) had been forwarded to Rappahanock Station on the eighth, brought back to Alexandria on the ninth, and again forwarded to Fredericksburg—or Belle Plain—reaching there on the tenth, one day late. The Surgeon General sent two Medical Supply Steamers direct from Washington, and it is worthy of notice that these were the first supply boats of any kind to reach the new base. They were at Belle Plain before any wounded arrived there.

The ambulances were stripped of their supplies and started back the same evening, reaching the Army again on the tenth. It is hardly necessary to say that every one with them was exhausted. The ambulances had been needed on the eighth for the fighting about Todd's Tavern. In their absence the wounded straggled over the country causing much confusion. But that story belongs to another battle.

Fredericksburg was again converted into a hospital. All the public buildings were taken and many private ones. Wounded officers were billeted on families. There was a famine of supplies at first but this was soon remedied, as seen above. The wounded were grouped by corps in certain parts of the town. On May 10th the supplies began to arrive from Alexandria, and with them a force of surgeons. The remaining wounded from the Wilderness arrived in the next four days; meanwhile another stream was pouring in from Spottsylvania.

The evacuation of wounded to Washington began at once, the most serious cases being sent first. The route was by road to Belle Plain or by railway to Aquia Creek; from there by boat. On May 20th 300 hospital tents arrived and as many as possible

Digitized by Google

of the wounded were removed to these tents, pitched outside the town.

By May 28th all the wounded had been removed; the hospital was broken up and the supplies sent to White House, the next base of the Army. During the nineteen days that this hospital was in existence at Fredericksburg more than 26,000 wounded and sick passed through it. I believe this is the record for numbers and time.

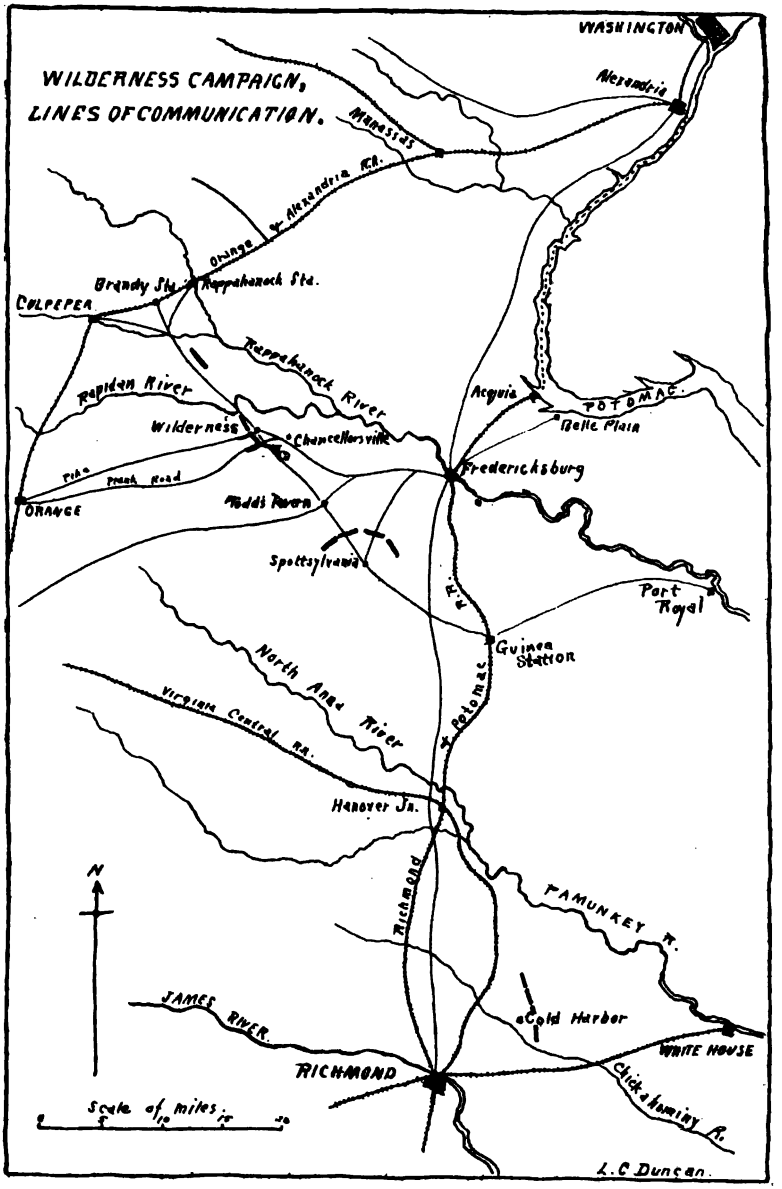
It will be noted that no evacuation hospitals were brought forward to the battlefield, as at Antietam and Gettysburg. The field was cleared of wounded and abandoned. This was because it was in the enemy's territory and unsafe. Also it was in an unfavorable locality, away from the railroads. In order that empty supply wagons could be used for the wounded it was necessary that the evacuation hospital be at the supply base, at the head of rail transportation.

COMMENTS.

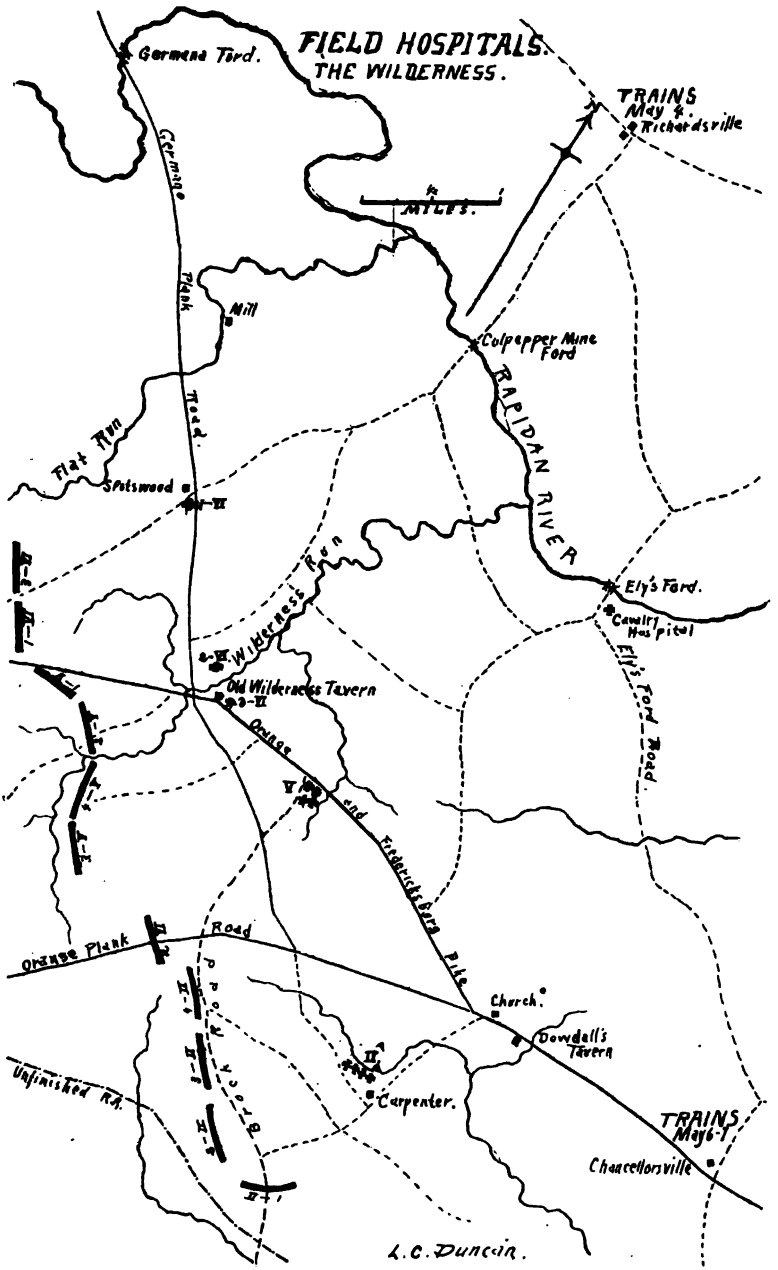
Little fault can be found with the organization of the Medical Department or the order specifying what parts of it should march with the troops. Defects which have been remedied since were: in personnel of the ambulance corps; insufficient number of permanent officers with field hospitals; and the single aid and dressing station combined.

The complete breaking up of the base hospital at Brandy Station does not appear to have been entirely advisable. It is true that Alexandria was but six hours away and that supplies were sent forward promptly. In spite of a false start they reached Fredericksburg but one day late. But these supplies did not include tentage. Had the seven thousand wounded been taken to the railway as started, they would have been unloaded at the station without shelter, instead of at Fredericksburg, where there were plenty of buildings. Aside from the question of shelter there could be no criticism. At any rate the error, if it be an error, was not of the Medical Department. The base at Brandy Station was abandoned by order of the general, probably to avoid sparing troops to guard it.

Digitized by Google



Digitized by Google



Digitized by Google

On May 8th the Army was stripped of ambulances, and a great battle beginning. There was some severe fighting that day in front of Todd's Tavern, resulting in some fifteen hundred wounded. McParlin says, "Slightly wounded men were straggling all over the country, in every direction except toward the front. The stretcher bearers labored faithfully, but the number of wounded was so large, and the distance that they had to be carried was so great that the evils mentioned could not be prevented." As a partial remedy, all the headquarters wagons of the whole Army (about sixty) were seized and used as ambulances.

When the next train of wounded was made up wagons alone were used; no ambulances were allowed to leave the front. These wagons were uncomfortable and insufficient in numbers.

Holding all wounded in the hospitals until the night of the 7th was by direction of the Commanding General. But they could not have been started earlier in any event from lack of transport. Could a stream of wounded have been started to the rear on the afternoon of the 5th, the over-crowding of field hospitals would have been much lessened.

The gathering of blankets and shelter tents from the field is an interesting thing. It seems to have been a regular procedure in this campaign, and furnished the only bedding and shelter for thousands of wounded.

The Autenreith Medicine Wagon was so universally used, approved, and commended that one feels like prophesying that in case of a great and long continued war a similar wagon would again come into use. All medical officers thought it superior to a heavy wagon with medicines packed in boxes. This type of wagon required no packing and unpacking.

The principal differences between the whole system of sanitary tactics then and now are two. The ambulance train was then a quartermaster organization. The change to a medical personnel has been made recently. This places the entire management of the wounded in the hands of the medical department. It leaves regimental officers free for their own work; it places the handling of the wounded in medical hands; it gives a larger force to draw on for the field hospitals. There is one thing yet lacking—transportation.

Digitized by Google

The other great difference is, the general advance in the influence, authority, and prestige of the Medical Department as a whole. In recent years the Medical Department has become, after the line, one of the most important parts of the Army.

After all criticisms have been made it must be said that the organization of the Medical Department of the Army of the Potomac was, for the times, excellent, and that its operations during the Battle of the Wilderness were in the main satisfactory. In fact, one reads of the sanitary tactics of those days with amazement that they should have been so good; and easily imagines that he is reading of the events of today. If the reader turns to the surgical records, he goes back to a distant age, and might easily imagine himself reading of the surgery of the ancient Egyptians.

If, taking into consideration the advances in military science, improvements in communication and transportation, and the science of efficiency in labor, the Medical Department in the next great war is proportionately as successful as was that of the Army of the Potomac in 1864, it will not have to seek excuses and apologies for its conduct.

But it should not be forgotten that the work done at the Wilderness was the fruit of three years' experiments, ranging from dismal and total failure at Bull Run to comparative success at Gettysburg. The cause of failure was lack both of system and of personnel and equipment.

At present we have an admirable system.

It is to be regretted that no medical officer who took part in these campaigns has put his experience in writing for the benefit of those of us who have had no such opportunity. I hope it is not yet too late. Such memoirs have an incalculable value.

APPENDIX.

Medical officers of the Army of the Potomac, at the time of the Battle of the Wilderness:

Medical Director: Surgeon Thomas A. McParlin, U. S. Army.

Assistant Medical Director: Surgeon J. F. Ghiselin, U. S. Army.

Assistant Medical Director: Asst. Surgeon J. S. Billings, U. S. Army, in charge of records and statistics.

Medical Purveyor: Asst. Surgeon J. B. Brinton, U. S. Army.

Digitized by Google

Medical Director, 2nd Army Corps: Surgeon A. N. Dougherty, U. S. Volunteers.

Medical Director, 5th Army Corps: Surgeon J. J. Milhau, U. S. Army.

Medical Director, 6th Army Corps: Surgeon S. A. Holman, U. S. Volunteers.

Medical Director, Cavalry Corps: Surgeon R. W. Pease, U. S. Volunteers.

Surgeon in charge of Depot Hospital, Fredericksburg: Surgeon E. B. Dalton, U. S. Volunteers.

AUTHORITIES.

American Campaigns—Steele.
Personal Memoirs—Sheridan.
Personal Memoirs—Grant.
Memoirs of a Confederate—Alexander.
Battles and Leaders of the Civil War.
War of the Rebellion, Official Records.
Medical and Surgical History, War of the Rebellion.

Digitized by Google

CONSTABULARY VERSUS NATIONAL GUARD.*

By Major R. W. MONTELIUS, Medical Corps, Pa. N. G.

THE various papers that have been read at the meetings of this honored body have so thoroughly dealt with the subjects pertaining to sanitation in its many details, that I thought I would deviate from this channel and choose for my subject—the national guard versus the state constabulary.

Pennsylvania has for many years called upon the state troops to assist the sheriffs of the various counties of our commonwealth in suppressing riots and to do police duty for a week or months at a time. The state soldiers always responded and did their duty honorably. Unfortunately, in the ranks were many who were dependent upon the industries for a livelihood whose sympathies were with the striking element, and, they not being under salary except for the time of active duty, did not have the moral effect upon the lawless element of the coal producing and manufacturing centers.

Personally I know of one company commander who at a time of action in 1902 gave instructions to his men to shoot in the air or into the ground so they would not do personal injury to the attacking force.

Imagine for one minute the value of any organization that is commanded by an officer who is in sympathy with the enemy.

This is the sentiment that has existed for years in the mining communities and it has made our state force unequal to the existing conditions.

This officer has been removed but the order still lives in the minds of the men. In a measure you cannot blame them for being reluctant to do injury to their fellow men; besides, they know if they in turn are injured the state has made no provision for pensioning them or taking care of the families as is done in the regular establishment. This is a condition that should be remedied by the government as there is no reason why one disabled in action if a member of the state or national guard should not be taken care of.

*Read at the 20th Annual Meeting.

Digitized by Google

Our former state executive, Hon. Samuel W. Pennypacker, realized some other means should be used to quell riots and do police duty, and seven years ago had a law passed organizing the state constabulary.

This organization is composed of four troops consisting of eight officers and two hundred and twenty men under the command of Major J. C. Groome, of Philadelphia—preference was given to men who had military training and experience and it would be difficult to find a finer looking body of men.

It was the privilege of the writer to see a detachment of twenty-three from Troop "A" of Wilkes-Barre, Pa., in action during the local strike in Mt. Carmel, Pa., in 1906, when the Lehigh Coal Co. called for assistance, and this body of men was sent here. On reaching Mt. Carmel they were taken to the stockade surrounding the colliery where they corralled their horses and, not having any equipment for cooking, repaired to the largest and best hotel for breakfast.

On entering the dining room the entire force, cooks and waiters walked out of the hotel as they were in sympathy with the striking element.

It was but a very short time until the whole town knew of the advent of the troops; and the hotel was soon surrounded by the mob who threw stones through the windows and made threats, whereupon the commanding officer, Lieutenant Percy Smith, gave orders to fall in. The detachment left the building in single file, and covered the full width of the street. At the command—about face—charge clubs—they made an attack on a crowd of over three thousand and put to flight the entire mob, scattering them pell mell in every direction and succeeding in making many arrests. Later on the many sympathizers had the commanding officers arrested for assault and held them in bail until noon, allowing them to return to their quarters when they put on their side arms and returned for the hearing.

Gentlemen, I doubt if you have ever seen as wild and excited a crowd as that gathered at the office of justice.

After the hearing, when on their way to the stockade, they were stoned and shot at when the officer in charge gave orders to about face and shoot.

Digitized by Google

The scene beggars description, this mass of humanity, men, women, and children scattered in every direction but the well aimed guns of the constabulary sent the bullets to their mark, forty or more fell from the first volley—many of them seriously injured.

This battle took place on the street on which I reside at a very short distance from me, and I was soon called into action myself.

Making an emergency hospital out of one of my neighbor's parlors, I there dressed thirty gunshot wounds—four, were very serious, two of the number were shot through the left lung—the other two were shot through the abdomen.

After giving first aid treatment, I sent the most serious to the State Hospital and the less severely injured I gave treatment at their homes.

Fortunately every case recovered, and all were injured by the .38 caliber Colt revolver.

The troopers patrolled the town for several days making many arrests without being molested, and in very few days Mt. Carmel was as tranquil as a farm. Before leaving our town the troopers made their visits without arms.

Without making undue criticism, the National Guard could never have brought about such a result with twenty-three men.

A very serious strike was on in Lehigh County ten years ago. Riot ran rampant in Bethlehem, Pa., where Mr. Schwab's steelworks are located, the local authorities were powerless—they tried every means but were compelled to call upon the State Constabulary. Upon their first appearance they were confronted with a serious situation, but in a few days everything was serene.

If this organization had not been in existence the National Guard would undoubtedly have been called into action. As it was our commanding officers were in direct touch with the Adjutant General. I might here state about one year ago a similar disturbance took place in the city of Philadelphia, when the local authorities were unable to combat the revolver element. They called into action their city organization, the State Fencibles, whereupon the strikers cut the buttons off their coats, took their guns and kicked them lustily.

This same body was again called and in a few days all was serene.

Digitized by Google

There has been a marked decrease in the number of crimes committed in all localities the force has been able to patrol. Allow me to inform you that one hundred and one arrests for murder alone have been made in the last four years. And in one year 3,799 arrests have been made for 86 different crimes.

The performance of duty has not been unattended by danger, as several of the State Constabulary have lost their lives In spite of the good work they have done a class of people are exerting themselves to have the law repealed for them.

Permit me for the honor of the state of Pennsylvania to say instead of repealing the law, the last Legislature granted them increased pay.

Would it not be advisable for other states employing foreign labor to copy Pennsylvania, and relieve the National Guard of police duty.

Digitized by Google

VENEREAL PROPHYLAXIS.

A Supplementary Report.

By Major DEANE C. HOWARD, Medical Corps, U. S. Army.

IN The Military Surgeon for November, 1911, a short article was published describing a scheme of compulsory prophylactic treatment following exposure to venereal diseases, which had been initiated and applied at the recruit depot, Jefferson Barracks, Missouri, in August, 1911. The results of its application to a single company in August compared with other organizations at the depot, in which the use of the treatment was voluntary on the part of the men exposed, were so convincing as to the value and practicability of the method that it was extended to apply to the entire command in September, 1911. The comparative venereal record for September, which was included in the published report, strongly confirmed the previous favorable impressions of its efficacy. While a somewhat similar system had been in successful operation in the Navy for several years, so far as known the scheme of mandatory personal prophylaxis following exposure introduced at Jefferson Barracks was the first of its kind to be applied in the Army. The measures described have been continuously in force for a period of six months (September 1st, 1911, to March 1st, 1912), and the venereal statistics for that period are now available for study. The results may be of interest to medical officers who may desire further information on the subject before accepting the conclusions contained in the preliminary report.

In all essentials the system as introduced in September has remained unchanged. Experience taught us that there were certain weak points requiring correction, and minor changes have been made from time to time. For the earlier months the work was carried out under company orders, issued by verbal direction of the Depot Commander. It was found upon trial that there was lack of uniformity in the orders and their enforcement, and that the degree of personal interest and zeal on the part of individual company commanders was a very important factor in the results

Digitized by Google

obtained. Some had rigid orders and enforced them to the letter while others were more lenient and gave the matter less attention. The Depot Commander gave his earnest support to the work from the beginning, without which nothing in compulsory prophylaxis could have been accomplished. When it became evident that more effective control would result by covering the subject in a post order, the following was published and made effective January 1st, 1912:

Memorandum:

I. The most common causes of sickness in the Army are the ***venereal diseases.*** The two principle venereal diseases are Syphilis and Gonorrhoea (clap).

SYPHILIS begins with a small sore on the penis. Later an eruption (breaking out) appears on the body, the glands enlarge (bubo), throat gets sore, hair falls out, and late in the disease, if not properly treated, such serious conditions develop as locomotor ataxia, epilepsy (fits), insanity, blindness and extensive ulcers in various parts of the body, especially within the nose and throat.

GONORRHOEA (clap) is really a serious disease, and men must not be misled by such statements, as "just as soon have clap as a bad cold," etc., which are frequently heard. The disease has many complications such as serious disease of the testicles, kidneys and bladder as well as gonorrhoeal rheumatism which causes great suffering and often permanently disables the patient. A soldier with gonorrhoea in barracks is a source of danger to his comrades, often causing destructive disease of the eyes from handling towels, clothing or other articles which have been used by such a case. Syphilis also is sometimes innocently contracted by a comrade of a soldier with the disease, and it is therefore necessary to keep all venereal patients in hospital until danger of spreading the disease has passed.

A soldier who contracts a venereal disease not only is subject to much suffering and long confinement in hospital, but is also unable to perform the duty during his sickness that the Government has a right to expect as a part of his contract with it. Every recruit comes into the Army, presumably with a sound body and he should maintain his health and not become incapable of performing his duty through his own misconduct. Venereal diseases are contracted chiefly through sexual intercourse with prostitutes. Most prostitutes contract one or both of the principal venereal diseases early in their career, and men having sexual intercourse with them are exposing themselves to the danger of con-

Digitized by Google

tracting these diseases and a future of ill health and misery. Sexual intercourse is not necessary for the preservation of health and manly vigor. The occasional emission of semen during sleep (wet dreams) is not a sign of disease or debility, but is Nature's way of relieving an excess of semen secreted and need cause no alarm. The only sure way to escape venereal diseases is to keep away from prostitutes.

2. Experience at this depot has shown that 95 per cent of cases of venereal diseases are preventable if treatment is given within a few hours after sexual intercourse. A system of treatment has been prescribed and is carried out at any hour of the day or night by the Hospital Corps attendant on duty in the venereal dressing room on the main floor of the hospital building to all soldiers reporting. No officer or sergeant need be consulted and the treatment is given in strict privacy. The sooner men report after intercourse the better chance they have for prevention of disease. It is for your best interest to avoid the contraction of these diseases, and the consequent, long confinement in the hospital and in many cases the serious complications arising therefrom.

3. All enlisted men of the Command who expose themselves to the danger of contracting venereal diseases by sexual intercourse with women, will immediately upon return to the post, or if exposed on the reservation before return to quarters, report at the hospital for preventive treatment.

Enlisted men absent from the Post on pass will upon their return and before turning in their passes, endorse on the back thereof over their initials whether or not they were exposed to venereal infection during their absence from quarters.

4. Soldiers having had venereal disease necessitating their admission to the hospital for treatment will be denied pass privileges for a period of three (3) weeks from the date of their return to duty.

5. Commanding Officers of organizations will adopt such measures as will ensure a full understanding of this order on the part of squad instructors, other noncommisioned officers and permanent party men belonging to or attached to their organization.

6. This order will be read by squad instructors to all recruits on the day following assignment to their squads. When this has been done the fact will be recorded by insertion of the letter "V" in the column of remarks on each man's instruction report.

A copy will be kept conspicuously posted on the bulletin boards of each organization.

By Order of Colonel Wood:

Official: J. B. WILSON
Captain, 8th Infantry,
Adjutant.

Captain, 8th Infantry,
Adjutant.

Digitized by Google

The above order in every detail was given thought and consideration before its issue, and while it may be subject to criticism, it is believed to cover the ground satisfactorily, and has worked well in practice. Previous to the date the order became effective, a venereal circular had been handed to each recruit on the day of his enlistment. It was considered better that all necessary information as to venereal diseases and sexual hygiene should be included in the memorandum order, as provision had been made for the information contained therein to properly reach the recruit through personal instruction. This added considerably to the length of the order, but it was decided to present it in this form and discontinue the distribution of the circular which often remained unread. An important provision in the order withholds pass privileges to venereal patients for a period of three weeks following return to duty. This serves the purpose of preventing the recent venereal patient from re-exposing himself, and bringing on a relapse, before cure is complete, and further serves as a reminded that a soldier, who contracts a venereal disease and becomes incapacitated through his own misconduct, is not entitled to the privileges of men on the good conduct list. The enforcement of this system puts a stigma on the soldier contracting venereal disease, and quite properly so.

RESULTS.

The admission rate for venereal diseases at this Depot for 1910 was 313 per 1,000, at a time when venereal inspections of the command were not authorized. This admission rate would have been greatly increased if all concealed cases had been brought to light. In July, 1911, venereal inspections were first authorized and have since been made monthly. While the concealed cases were present during one half of 1911, for the second half all cases were brought under treatment and appear of record. Hence, under the conditions in 1911, if prophylactic measures had not been adopted, an admission rate considerably higher than in 1910 would be expected. Compulsory prophylaxis was given during a period of four months in 1911. The admission rate for 1911 (with effective prophylaxis for four months only) was reduced to 250 per 1,000. During the last four months of the year

Digitized by Google

the rate was only 166 per 1,000. Over one-half of the admissions for venereal diseases at Jefferson Barracks have been due to infections contracted prior to enlistment. It is obvious that no control can be exercised over this class of admissions. Probably 80% of fresh infections (new cases) can be prevented by the vigorous enforcement of this system of prophylaxis. The cases contracted at this Depot during the past six months number 43 only, with a daily average enlisted strength of 1,402, giving an equivalent annual admission rate of 61 per 1,000. Twenty-eight of the fresh infections had failed to take the treatment, and were reported to the Adjutant for disciplinary action. *Only 15 cases* followed the use of *1,675* prophylactic treatments during this period (less than one infection to every one hundred men exposed and treated), which indicates a degree of protection greater than 99%. If every soldier had taken the treatment as required by orders during the six months' period ending March 1st, 1912, it is believed that the admission rate of fresh infections for that period would not have been greater than 20 to 30 per 1,000.

The venereal record in detail since compulsory prophylaxis has been in force is shown in the following table:

VENEREAL RECORD AT JEFFERSON BARRACKS, MISSOURI, *with Results of Compulsory Prophylactic Treatment from September 1st, 1911, to March 1st, 1912.*

Month	Average enlisted strength of command	Average daily number sick all causes	Total venereal admissions	Contracted before enl't or before arrival at Dept. or readm. old cases	New cases (fresh inf.) contracted at depot	Reported for prophylatic		Total number prophylatic treatments
						Yes	No	
September	1349	39.4	21	17	4	1	3	216
October	1307.8	41.5	23	15	8	2	6	256
November	1419.7	33.6	19	11	8	2	6	248
December	1478.5	37.5	29	15	14	7*	7	376
January	1475	36.04	13	10	3	2	1	334
February	1371.4	38.7	12	6	6	1	5	245
		Totals	117	74	43	15	28	1675

*Note.—The large number of infections credited after use of the treatment in December was due to sharp practice on the part of enlisted men to avoid punishment. The scheme adopted, which was successful in several of the accredited cases, follows: A soldier would expose himself and fail to take the treatment. Several days later when he felt the oncoming of the disease he would report for treatment and give a fictitious date of exposure. He would then return to his company and

Digitized by Google

two or three days later would report at sick call with a well developed case of the disease. Several cases were caught in the lie and properly punished. To circumvent this practice instructions were given to examine closely each man reporting for treatment and if any signs of the disease were present, a smear was to be taken and subsequently examined microscopically. In this manner the practice, which promised to discredit the treatment, was effectively stopped.

Summary for the Six Months' Period.

Average daily enlisted strength	1,402
Average number daily sick, all causes	37.7
Admission rate (equivalent annual) per 1,000 for venereal diseases	166
Admission rate (equivalent annual) per 1,000 for venereal diseases contracted at Depot	61
Admission rate (equivalent annual) per 1,000 for venereal diseases contracted after use of the prophylactic	21
Percentage of infections after use of the prophylactic	9-10%

The results thus far are particularly gratifying, but a further reduction in the venereal incidence is confidently expected for the current six months' period. The purposes and benefits of the order on the subject are becoming better understood, and soldiers are beginning to appreciate that they get effectual protection from infection by compliance with the order. Regular inspections are made by a medical officer and there are no concealed cases in the command. Where formerly it was not uncommon to hold up 2 or 3% of outgoing recruits on account of venereal disease discovered at the final outgoing examination, for several months past such a case is extremely rare. Formerly the 18 bed venereal ward was filled constantly. When periodical inspections of the command for venereal diseases were first begun it was necessary to open a second 18 bed ward to accommodate this class of cases. The second ward has been closed, and more than one-half of the beds in the one venereal ward are now constantly unused. Five (5) venereal cases only (from command) are in hospital this date (March 8th, 1912) with an enlisted strength of 1,386. The lessened prevalence of these diseases is strikingly apparent to the casual observer who is familiar with former conditions in military hospitals.

There were 28 delinquents during the six months' period, a number altogether too great. The penalty for non-compliance with the order should be sufficiently severe to reduce this class

Digitized by Google

to a minimum. All delinquents have been tried and convicted by Summary Court. The punishment imposed has varied from a forfeiture of five (5) to fifteen (15) dollars, depending upon the attending circumstances. If the delinquent list remains large, a heavier penalty must be imposed, if it is determined to be necessary to make the order generally effective. It is believed that a forfeiture of at least one month's pay is not too great for simple failure to report for treatment as required by the order. If a pass has been endorsed falsely ("not exposed") and venereal disease develops subsequently and the evidence is clear as to the date of exposure, the forfeiture should be doubled. If forfeiture alone does not reduce the number of delinquents it may be advisable to add confinement at hard labor for ten (10) days in addition. The object sought is to cause universal compliance with the order, and the least penalty should be imposed that will accomplish this result. It is believed that an order requiring preventive treatment following exposure to venereal diseases can be as easily enforced as one requiring soldiers to use only boiled water for drinking. We know that orders on either subject will be violated in some instances, but this is not a valid argument against the expediency or wisdom of issuing such orders, when considered necessary to maintain in a command the highest degree of physical efficiency. The best results will be obtained in the application of mandatory prophylaxis, if the responsible medical officer will personally investigate each venereal admission, follow up and verify the soldier's statements pertaining to his absence, date and hour of exposure, etc., and in case investigation shows failure to comply with the order, to collect the evidence necessary to secure conviction. The statements of the soldier regarding the time of his exposure must be taken for what they are worth. In case of failure to take the treatment as required by the order, this statement naturally would be untrustworthy. It is certain that several of the fifteen (15) cases following the use of the treatment should not have been so credited. Of the fifteen (15) infections, thirteen (13) were gonorrhoea, two (2) chancroids, syphilis none. One of the chancroid cases developed after an alleged incubation period of three (3) weeks, a manifest impossibility. He was undoubtedly exposed at a later date than claimed, and denied exposure to escape punishment.

Digitized by Google

The introduction of this system in regular garrisons should cause a more marked reduction in venereal rates than is possible at a recruit depot, where the majority of cases are prior to enlistment infections. If satisfactory results can be obtained at recruit depots with a continually changing personnel, there can be no question as to the efficacy and practicability of these measures in other posts if located reasonably near the sources of infection to make possible the application of the prophylactic within a few hours following exposure. It is understood that this system was introduced at Columbus Barracks, Ohio, beginning November 20th, 1911, and from personal communications it is learned that the results are most satisfactory and confirmatory of the work at this depot. From experience here it would seem possible and practicable to reduce the incidence of venereal diseases in the Army to at least one-third and perhaps one-fourth of the present rates by the general application and vigorous enforcement of this or a similar system (modified as may be necessary by local conditions) combined with the additional penalizing measure of stoppage of pay of men incapacitated on account of venereal disease for the time lost on account of such sickness.

Digitized by Google

REPORT OF THE U. S. ARMY BOARD FOR THE STUDY OF TROPICAL DISEASES AS THEY EXIST IN THE PHILIPPINE ISLANDS, QUARTER ENDING JUNE 30, 1911.*

By Major WESTON P. CHAMBERLAIN, Medical Corps, U. S. A.; Captain EDWARD B. VEDDER, Medical Corps, U. S. A.; Lieutenant JOHN R. BARBER, Medical Corps, U. S. A.

THE Board for the Study of Tropical Diseases has the honor to submit the following report of its work for the quarter ending June 30, 1911:

CONTINUED ABSENCE OF BERIBERI FROM THE PHILIPPINE SCOUTS.

In a special report forwarded February 7, 1911, we called attention to the disappearance of beriberi from the Scouts following a change in dietary, and showed that the elimination of the disease could not have been due to the use of unpolished rice since it occurred before the undermilled rice began to be issued. We expressed the opinion that it was the reduction in the amount of polished rice consumed and the addition of a legume which had eradicated the disease, but we affirmed our full belief in the polished rice theory of beriberi production and stated that undermilled rice had doubtless contributed a share to the good results in the last quarter of 1910.

As before recorded, the new Filipino ration (G. O. 24, 1910), was revoked on November 7, 1910, by cablegram from Washington, and in its place was prescribed the old Filipino ration (A. R. 1220, 1908), containing the same components which had resulted in over six hundred cases of beriberi per year in 1908 and 1909, except that undermilled rice was substituted for polished rice. With two unimportant exceptions the issue of mongos and camotes had ceased before the end of November, 1910.

In previous reports we referred to the important fact that only one case of beriberi had occurred among the Philippine (Native) Scouts in December, 1910, and only one case in the first three months of the calendar year 1911. The same favorable showing

*Report made to the Surgeon General, U. S. Army, and published with his permission.

Digitized by Google

continued in April, May, and June,* no case having occurred during the quarter. This record of only two cases of beriberi during seven months is to be contrasted with an average of over *fifty admissions per month* for the calendar years 1908 and 1909, during which years all known conditions among the Scouts were exactly similar to those pertaining throughout the last seven months except that in 1908 and 1909 these native soldiers received *twenty ounces of polished rice* daily, whereas during the last seven months they have been allowed *sixteen ounces of undermilled rice.*

The figures seem to us to indicate very clearly the etiological relationship of polished rice to beriberi. From the viewpoint of preventive medicine there are few instances in medical history where such immediate and striking results have been obtained. Yellow fever, scurvy and variola are the only other diseases in which we can recall results that are so clear cut and convincing.

We also referred in our last report to the fact that the Filipino No. 2 (red) rice used for some time as the type of an undermilled grain had been replaced by a rice of better grade and appearance which has white pericarp instead of red and is called by the Subsistence Department, "Rice M. M." (medium milled). Circumstances over which this Board had no control led to the purchase for a short period of a grade of "M. M. rice" which was indeed undermilled, but which was not quite so undermilled as could have been desired. In other words, rather too much of the pericarp had been removed. This rice will be in use for two or three months, and if a few scattering cases of beriberi should occur during this period they will not disprove the polished rice theory of beriberi production, but will simply show that in making the change from red to "M. M." rice the first lots purchased were a little too highly milled. By September 1, 1911, a much less highly milled rice will be in general use among the Scouts.

FURTHER STUDIES OF POLYNEURITIS GALLINARUM.

For more than a year the Board has been working on the subject of polyneuritis gallinarum with a view to detecting the neuritis preventing principle in rice polishings. This work as it progressed has been reported on from time to time in quarterly

*One company not heard from for June.

Digitized by Google

and special reports. The results during the last three months we believe to be the most important yet obtained and they have been made the subject of a special report forwarded under date of June 23, 1911, and which will be published in the *Philippine Journal of Science,* Section B, Vol. VI, No. 3, under the title of "A Contribution to the Etiology of Beriberi."

Briefly, these results may be stated as follows:

Fraser and Stanton in the *Lancet* for December 17, 1910, report a series of experiments in which they prove that eighty-five per cent of the phosphorus in an acid extract of rice polishings is unimportant in preventing the neuritis of fowls. We confirmed these results and, going further, proved that the substances in rice polishings which are soluble in both cold water and cold alcohol will prevent the neuritis of fowls when given to birds subsisting on a polished rice diet. An extract containing these substances was found on analysis to contain only an infinitesimal amount of phosphorus. Out of each 1,000 parts of phosphorus originally present in rice polishings at least 999 parts were proved by these experiments to be not concerned in the prevention of neuritis.

In another series of experiments we dialyzed the above extract and found that the diffusate* was neuritis-preventing while the dialysate was not. This observation shows that the neuritis-preventing substance is crystaloidal and it enables us to exclude from further consideration all proteids, gums, starches and dextrines and probably also the enzymes.

As a result of the series of experiments we were able to arrive at the following conclusions:

(1) Polyneuritis gallinarum is not prevented by adding to a diet of polished rice any of the following substances: potassium phosphate, potassium citrate, potassium carbonate, potassium chloride, magnesium phosphate, phytin, phosphoric acid or phosphoric acid combined with potassium chloride.

(2) The neuritis preventing substance in rice polishings is soluble in cold water and in cold alcohol.

(3) Polyneuritis gallinarum may be prevented by means of an extract of rice polishings containing only those substances soluble in cold water and cold alcohol. This extract, so far as at present known, has the following composition:

*The diffusate contains the substances which pass through an animal membrane by dialysis. The dialysate contains those which are unable to dialyze.

Digitized by Google

Total solids	1.34	per cent.
Ash	0.03	per cent.
Phosphorus pentoxide	0.00165	per cent.
Nitrogen	0.0406	per cent.
Sucrose	0.88	per cent.

(4) Multiple neuritis in fowls fed on polished rice is probably not due to lack of phosphorus compounds in the grain, as claimed by Schaumann, since out of each 1,000 parts of phosphorus contained in the rice polishings at least 999 parts are not concerned in preventing neuritis.

(5) The neuritis preventing substance contained in rice polishings is capable of dialysis through a parchment membrane. This excludes all colloids from consideration.

These findings, however, do not necessarily conflict with the statement made by Fraser and Stanton and by others, including this Board, to the effect that the proportion of phosphorus pentoxide present in a rice is an *index* of its beriberi preventing powers. Such a statement has never, so far as we are aware, been intended to convey the impression that beriberi was due to a lack of phosphorus compounds, but merely means that a rice containing phosphorus in amounts above 0.4 per cent phosphorus pentoxide necessarily has a sufficient quantity of pericarp adhering to the kernel; i. e., it is sufficiently undermilled. As shown by a former publication of the Board the presence of a certain percentage of potassium appears to be an equally reliable index of safety, and so in fact would be the presence in a rice of a definite percentage of any substance which is found exclusively or almost exclusively in the pericarp and the aleurone layer.

ROUTINE WORK ON TYPHOID FEVER.

For the last three months the routine work on typhoid fever has included the following examinations:

Results	Widal Tests	Cultures from Stools	Cultures from Urine	Cultures from Blood
Positive	9	0	1	0
Negative	31	27	23	15
Total	40	27	24	15

The forty serum reactions were performed on the blood of thirty-eight persons. The nine positive Widals were made on the blood of five

Digitized by Google

Americans and four Filipinos. Of the former, three had been vaccinated against typhoid fever. The twenty-seven stool cultures were made on seventeen individuals and the fifteen blood cultures on fifteen persons. One positive culture was obtained from the spleen at autopsy of a Filipino dying of typhoid fever at the Philippine General Hospital. One serum reaction which was negative for typhoid proved positive for paratyphoid. The paratyphoid organism was isolated from the blood of this case. The twenty-four urine cultures were made on fourteen persons.

PREPARATION OF ANTITYPHOID VACCINE.

During the quarter the dust proof room for the preparation of anti-typhoid vaccine has been completed in our laboratory. Two and one-half liters of vaccine have been manufactured and sufficient for inoculating two hundred and fifty persons has been issued on request from post surgeons.

POSITIVE WIDAL REACTIONS IN VACCINATED INDIVIDUALS.

Since the use of the anti-typhoid vaccine began, the Medical Department has been on the alert for cases of typhoid occurring in vaccinated persons. During the small epidemic at Fort Mills there were two cases of continued fever, suggestive of typhoid, in such persons. Each gave a positive agglutination with *Bacillus typhosus,* and each, after repeated examination, failed to show typhoid bacilli in the blood, urine or stool. One suspected case in a vaccinated person, known to the Board but not under its personal observation, gave a primary negative agglutination, followed by a positive one, but in this case the observer was not sure of the purity of his first culture and the second agglutination test was not made with the same culture as the first.

The agglutination following the injection of anti-typhoid vaccine lasts in many cases from a year to a year and a half. During this period, the Widal reaction, as ordinarily performed, is of no value in the diagnosis of a continued fever. A well controlled negative reaction, followed, in a week or two, by a positive one should ordinarily be considered conclusive, and much dependence could be placed on a properly performed series of quantitative agglutinations. The agglutinin curve* in a vaccinated person

*By "agglutinin curve" is meant the curve obtained by plotting the maximum serum dilutions at which a positive agglutination is obtained in a series of tests performed at intervals.

Digitized by Google

is not given to much irregularity, and falls in a few months to a fairly unchanging level. The demonstration of a rising agglutinin curve, occurring in a case of continued fever, would be of great value as evidence of typhoid infection.

The main dependence in vaccinated cases must, of course, be in the cultural methods. Since the bacillus does not live for more than a few days in feces or urine, it will probably be impossible to make an unassailable diagnosis at distant stations in these Islands when there is a history of anti-typhoid inoculation with a year or two preceding the onset of an undetermined fever. Blood culture offers some advantages over cultures from stools or urine, but even with blood it has been our experience that it is extremely unusual to isolate the bacillus out of the specimens from distant stations in undoubted cases of typhoid. It must be borne in mind that a large proportion of the specimens reach the laboratory from one to two weeks after collection.

SOME OBSERVATIONS ON AGGLUTINATION.

During the last quarter a series of parallel microscopic and macroscopic typhoid agglutinations has been made from all fluid blood specimens sent in for diagnosis.

The technic followed in microscopic agglutination was the ordinary one, using a one to twenty-five dilution of the blood in 0.85 per cent salt solution, a loopfull of which was mixed on the cover glass with an equal quantity of a twenty to twenty-four hour broth culture of typhoid bacilli. This gives a final dilution of one to fifty. The strain of *Bacillus typhosus* was a quick-growing, actively motile one, not given to spontaneous clumping. Each hanging drop was examined at short intervals for one hour. The length of time required for stoppage of motility as well as that needed for distinct clumping, was noted, and the relative size of the clumps at the end of the period was recorded.

The macroscopic technic was that described in the circular from the office of the Surgeon General. A series of serum dilutions was made in ordinary test tubes comprising 1-25, 1-50, 1-100, 1-200, 1-400 and higher, and to each tube was added an equal quantity of a broth culture of the standard typhoid strain, grown at thirty-seven degrees for twenty-four hours, and killed by the addition of one per cent formalin. The ultimate dilutions, therefore, were 1-50, 1-100, etc. After twenty-four hours at room temperature, which varies from 27° C. to 31° C. in this laboratory, readings were made, and positive findings, (so designated only when

Digitized by Google

clumps could be seen with the naked eye) were recorded as +50, +100, +200, etc. A negative finding was recorded as —50, —100, etc.

Of all the specimens studied only nine were positive or doubtful microscopically; they are tabulated as follows:

Serial No.	Macroscopic Results		Microscopic Results			
	Reaction Recorded	Titer	Stoppage of Motility In	Size of Clumps	Clumping in	Reaction Recorded
415	+	800	5 minutes.	Small	10 Min.	+
416	+	400	5 minutes	Small	10 Min.	+
420	+	100	15 minutes.	Medium	45 Min.	+
422	+	200	Incomplete 1 hour.	Large	5 Min.	—
429	+	1280	5 minutes.	Very large	5 Min.	+
430	+	640	10 minutes.	Medium	15 Min.	+
438	+	640	10 minutes.	Small	10 Min.	+
442	—	50	None.	Large	10 Min. Partial.	—
460	—	50	None.	Large	15 Min. Partial.	—

It will be seen that when using both the microscopic and macroscopic methods conflicting results were obtained in case 422 when stoppage of progressive motility was required as one of the criteria for a positive reaction microscopically. It will be of interest to determine the frequency of such cases.

Microscopic examinations of a loopfull taken from the macroscopically negative one to fifty tube in case 460 showed an abundance of very small clumps. A macroscopic tube made up with a suspension of a living agar culture was also negative, but showed larger clumps when put under the microscope. It would be unfair to attempt deductions from such a small series of cases, and it has been impossible in the limited time available, to search completely the literature for observations on the relation between the agglutinating process and the stoppage of motility. The observations of Smith and Reagh regarding the presence of two independent agglutinating substances, one affecting the bodies and the other the flagella of bacteria, are interesting in this connection (4). The Board has always demanded a complete stoppage of progressive motility as a criterion for a positive microscopic reaction, and it has been thought that the macroscopic technic might sometimes show clumps where the hanging drop method showed some clumping but little or no loss of progressive motility. It would appear, especially in view of the observations in cases 422, 442 and 460 tabulated above, that full and detailed

Digitized by Google

comparative tests, such as are being conducted, should settle this question, and supply data for some interesting deductions.

A GENERAL CONSIDERATION OF TYPHOID FEVER IN THE PHILIPPINES AMONG BOTH WHITES AND NATIVES.

During the quarter we have completed a study of typhoid embodying an analysis of the work of this Board for a period of two and a half years. This analysis has been made the subject of a special report which was forwarded under date of June 7, 1911, and which will be published in the *Philippine Journal of Science*, Section B, Vol. VI, No. 4.

The report included the results of Widal test on four hundred and fifty-three patients suspected of having typhoid fever, of blood cultures on one hundred and fifty-six similar cases, of eight hundred and forty-six stools and urine cultures and of Widal reactions on the blood of five hundred and ninety-one healthy natives from various parts of the Islands; also a consideration of the epidemiology and the mortality of the disease among Americans and Filipinos, a description of recent Philippine epidemics, and an analysis of the clinical aspects of typhoid in one hundred and fifty-seven cases in the Archipelago for which we have received medical histories. The conclusions reached were as follows:

(1) Typhoid is a widely scattered and common disease in the Philippines; its incidence in Manila is above the average rate for the United States and is exceeded by only a few of the worst American cities; the average admission rate among American soldiers in the Philippines exceeds that for the troops serving in the United States; medical officers from many regions report its frequent occurrence among the Filipinos.

(2) The statistics from the Filipino (Native) Scouts show a much lower typhoid rate than for white troops, possibly due to failure to diagnose the atypical cases.

(3) Widal reactions performed on the blood of five hundred and ninety-one healthy Filipinos suggest a comparatively recent attack of typhoid in about six per cent of adults, but do not indicate that the disease is prevalent in childhood.

(4) Many epidemics have occurred among soldiers in the Philippines and three outbreaks among natives have been studied. Epidemics of great severity among the Filipinos are either rare or unnoticed.

Digitized by Google

(5) The occurrence of the disease in the Philippine Islands is quite evenly distributed throughout the year. The incidence is least in the second quarter.

(6) The appearance of the Widal reaction in typhoid fever in the Philippines is not as a rule delayed.

(7) Paratyphoid organisms are occasionally isolated in the Philippines.

(8) The leucocyte count in typhoid remains normal for whites and is slightly increased for natives. The differential count is normal for both races.

(9) The mortality for white troops in the Philippine Islands during the last five years has been no higher than at home. It appears somewhat higher for Filipinos, but this may be due to failure to diagnose all the mild cases.

(10) More than a third of the cases of enteric fever, whether among Americans or Filipinos, are entirely atypical and cannot be diagnosed without laboratory methods.

(11) Over half of the cases occurring in the Philippine Islands can be diagnosed clinically and differ in no essential particular from typhoid fever as seen at home. This is true for both American and Filipino cases.

(12) Much work still needs to be done among the natives to estimate the actual amount of mild and atypical typhoid which is occurring and to determine why extensive and destructive epidemics are not more often seen.

PARATYPHOID FEVER.

In our report for the quarter ending December 31, 1910, a history was given of a case of paratyphoid fever detected by blood culture. Another case has recently been found at Camp Stotsenburg, the details of which are as follows:

Matsuhito, Japanese Quartermaster employee. Little history obtainable since he speaks no English. Had been sick two days before entry to hospital. Complains of dull abdominal pain and diarrhoea. Ran a continued fever for twenty-three days after entering hospital. From five to twelve dark brown liquid stools daily at first. After five days stools became of pea-soup character. Tongue dry and coated, later becoming brown. Rose spots on chest and abdomen appeared five days after admission to hospital. Heart and lungs negative. During height of disease fever ranged from 101° F. to 103° F. Pulse rarely reached 100. Clinical aspects of the case was like typhoid fever.

Digitized by Google

The blood was repeatedly examined for malaria with negative results. The Widal test with *Bacillus typhosus* was negative on the seventh day of the disease. Culture from the same specimen of blood gave an organism corresponding in all respects with *Bacillus paratyphosus "A."*

On the seventh day of the disease the blood gave a positive microscopic agglutination (one to fifty) with a stock culture of *Bacillus paratyphosus "A"* and with patient's own organism. The serum reaction was negative (one to fifty) with *Bacillus typhosus* and *Bacillus paratyphosus "B."*

On the sixteenth day the blood serum gave a positive microscopic agglutination (one to fifty) with the patient's own organism and with a stock culture of *Bacillus paratyphosus "A."* The reaction was negative (one to fifty) both microscopically and macroscopically with *Bacillus typhosus* and *Bacillus paratyphosus "B."*

On the twenty-fourth day of the disease the blood gave a positive agglutination microscopically (one to fifty) and macroscopically (one to one hundred) with patient's own strain of *Bacillus paratyphosus "A."* It was negative with *Bacillus typhosus.*

Including Strong's finding of a paracolon infection at autopsy, the above case makes the third instance that has come to our knowledge where this group of organisms has been isolated from febrile cases in the Philippines. Ruedeger has isolated a paratyphoid strain from a dog dying of rabies in the Philippines (5).

THE FINDING OF A MARKED SHIFT TO THE LEFT IN THE ARNETH COUNT OF FILIPINOS.

In our quarterly report for September 30, 1910 (published in THE MILITARY SURGEON for February, 1911), we made a preliminary report, based on a small series of cases, which indicated that there was a marked shift to the left in the Arneth picture for natives in the Philippines and a slight movement in the same direction for white men residing in the Islands. During the last quarter we have continued this work and now have differential and Arneth counts for fifty Filipinos and for seventy-two Americans who had lived over a year in the Philippines. That the findings mentioned in our preliminary report are confirmed is shown in the following table. The work has been done by two observers working independently, and there was complete agreement in the results obtained by the two.

Digitized by Google

	White cells per cu. m. m.	Differential Counts per cent.					Arneth's Classification Per cent.					Index (Arneth)	Index (Bushnell and Troubetz)
		Polynuc	Eosin	Small Lymph	Large Lymph (*)	Mast Cells	I	II	III	IV	V		
Normal (Simon)	3000 to 10000	60 to 70	1 to 4	20 to 30	1 to 6	0.2 to 1.0	4 to 9	21 to 47	33 to 48	9 to 23	2 to 4	25 to 56	
Normal in Europe (Arneth)							5	35	41	17	2	40.0	60.5
Normal in U. S. (Kagan)							5	19	46	25	5	24.0	47.0
Normal (Buchanan and Williams (†)	5000 to 10000	70 to 90	0.5 to 4	20 to 30	3 to 6	1.5†	8	36	42	13	1†	44.0	65.0
Average for 72 healthy Americans in P. I.	7304	56.8	3.8	31.7	6.9	0.8	13.3	32.9	37.2	14.6	2.0	46.2	64.8
Average for 50 healthy Filipinos	9248	52.2	10.6	29.9	6.6	0.7	27.5	38.3	25.8	7.5	0.9	65.8	78.7

*With the large lymphocytes have been classed the transitional forms, following the grouping of Simon.

†The average white and differential counts given in this line are from "Blood in Health and Disease," 1909, R. J. M. Buchanan. The Arneth averages are from one hundred counts on fifty-five individuals in the United States, by W. W. Williams in Colorado Medicine, May, 1911, Vol. VIII, No. 5, page 175.

From the tables it is evident that there is a very marked shift to the left in the Arneth count for Filipinos and apparently a slight movement in the same direction for Americans resident in the Philippine Islands.

We have also divided our white men into two groups, depending upon whether they belonged to the blond type or the brunette type, and could find no important difference between the differential counts or the Arneth pictures of these two groups.

The bearing of the Arneth results on the subject of vital resistance in natives is of considerable interest. The above work has been made the subject of a special report which will shortly be published in the *Philippine Journal of Science*. The conclusions arrived at were as follows:

(1) Both Filipinos and Americans residing more than a year in the Philippines had a normal average number of white cells per cubic millimeter.

Digitized by Google

(2) In both races the percentage of polymorphonuclear neutrophiles was much decreased below the minimum considered normal for white men in temperate regions.

(3) Probably the polymorphonuclear neutrophiles are the only actively phagocytic cells in the circulating blood.

(4) The average Arneth picture showed a marked shift to the left in the case of Filipinos and a slight drift in the same direction for Americans resident more than a year in the Philippines.

(5) A shift to the left in the Arneth count probably indicates a diminution in the phagocytic power of the blood in question.

(6) From the first five conclusions it will be apparent that the Filipinos show an actual absolute reduction in the number of polymorphonuclear neutrophiles (phagocytes) and that of this reduced number an abnormally large proportion are deficient in phagocytic power. In other words, the Filipino has absolutely fewer efficient phagocytes than are found among white men either in the Philippines or at home.

(7) This reduction in circulating phagocytic cells may be a visible indication of a lowered resistance to infections on the part of native races.

(8) No material differences in the differential count or the Arneth picture were observed between two groups of American soldiers, one group consisting of twenty-eight pronounced blonds and the other group of twenty-eight pronounced brunettes.

TESTS OF OLIVE DRAB COTTON UNIFORM MATERIAL.

In the quarterly reports for September 30, 1910, and March 31, 1911, we recorded the results of some experiments which showed that garments and headgear of olive drab color, when the wearer was exposed to the sun, threw a much greater burden of heat on the organism than did articles of the same nature made of khaki colored material. The manufacturers of the olive drab fabric requested, through the Surgeon General, that tests be made by the Board with a lighter weight olive drab cotton cloth intended for officers' wear. It weighed five and one-half ounces to the yard as compared with six and one-half ounces for the standard Quartermaster's olive drab material. We found that this cloth possessed no advantage over the standard weight olive drab except occasionally when there was a strong wind. With much wind it would be natural that a thinner fabric should favor evaporation and so keep the body cooler than would a thick cloth of similar color, but there can be no doubt that a thin material of

Digitized by Google

olive drab color would be considerably hotter than an equally thin material of khaki color when both were exposed to the direct rays of the sun.

The power of absorbing solar heat when the materials were placed over an inanimate object was found to be slightly greater for the thinner fabric, probably because it was a shade darker than the standard Quartermaster's olive drab cloth.

The conclusions reached as a result of the experiments were as follows:

(1) That the sample fabric was slightly more absorptive of solar heat than the standard Quartermaster's olive drab, probably because it was a shade darker.

(2) That on the human body the sample was occasionally slightly cooler than the standard material, probably because its thinness favored ventilation and evaporation when there was a strong breeze.

(3) That the sample material on most occasions on the human body was not as cool as the standard cloth.

(4) That the sample material was not nearly as cool as a similar material of white or khaki color would be.

(5) That olive drab is not a suitable color for ordinary wear in the tropics.

(6) That if any change is made from khaki for use in the tropics it should be in the direction of a lighter rather than a darker shade.

THE SO-CALLED X-BODIES AS ARTEFACTS IN GLASS SLIDES.

Dr. Andrew Balfour (1) has announced the finding of the so-called X-bodies in the blood of a patient suffering from urticaria. The bodies were first reported by Horrocks and Howell (2) who found them in a case of tertian malaria, in several cases of undetermined fever, in the citrated blood from a rabbit and in the blood of oxen. They describe these bodies as follows:

"These bodies, when stained, were characterized by a faint capsule with a circular center staining deep blue; they varied in size, some being as large as a red corpuscle, others only about one-eighth the size of a red corpuscle. In addition to these forms, which were the most common, the following were also seen: (a) A small blue circular center surrounded by four or more faint capsules, concentrically arranged; (b) two circular bodies, each having a dark blue central point surrounded by a light blue ring, enveloped in one capsule which appeared indented as if two cap-

Digitized by Google

sules were in the process of formation; (c) similar to (b) but the part surrounding the deep blue center stained a deeper blue, and two indented capsules were seen; (d) a dark blue central part shaped like a crescent, containing a small circular body, with a deep blue central point within the arms of the crescent. None of the bodies on the slide showed any signs of chromatin."

Neither Horrocks and Howell nor Balfour commit themselves as to the nature of these bodies. Indeed, the former authors say, "Having in view the diverse nature of the cases in which the X-bodies were found, we are not justified in considering that they were the cause of the pathological conditions observed." It occurred to Balfour that such bodies might be contaminations from the skin, but this idea was subsequently dismissed, and none of these investigators appears to doubt that the X-bodies were really obtained from the blood. Fortunately they both furnish good and detailed drawings which permit of easy identification of the X-bodies.

We believe that we can point out the nature of these bodies, and that we ought to do so, not only because two papers have been published on the subject, but because it has come to our knowledge that other investigators have been misled by them. Therefore, a statement of their true nature may simplify investigations in the future.

These peculiar bodies were first observed by one of us in 1907 while studying the blood of dengue, and before the publication of the paper by Horrocks and Howell. They were at first thought to be parasites associated with that disease, but further study showed that they were frequently present in normal blood. They were subsequently found again in specimens from various pathological conditions, and from different parts of the body, and the idea was finally suggested that they were artefacts in the glass slides. Search of a number of plain unstained glass slides revealed the fact that these bodies could be found on many of them, when they contained no specimen of any kind. On such an unstained slide the bodies have the same morphology but without coloration. When the glass slide is previously stained with a little Wright's stain, as though staining a blood film, the bodies take on exactly the appearance described and accurately depicted by Horrocks and Howell and by Balfour.

Digitized by Google

The X-bodies described in these two papers are therefore artefacts of some sort, present in certain of the glass slides for microscopic use. We think that they are found more often in old slides that have been used several times, and have been kept for some time in the tropics. We believe that anyone finding the X-bodies in a preparation can readily verify our statement by staining and examining some of his slides on which no smear has been made. The bodies are not in the stain because they may be found in unstained preparations.

Other facts that confirm these observations are: 1. The X-bodies have been found on slides made under a great diversity of conditions from both men and animals, including the blood from cases of malaria, undetermined fever, urticaria and dengue, and normal blood in the human, and also the blood of oxen and rabbits and the liver of oxen. We have observed them in slides containing scrapings of skin mounted in liquor potassae. 2. In the same case the bodies are not found constantly, but are only seen in a few out of many smears, although they are usually quite numerous in the particular slides in which they are observed. If present in the circulating blood, they should be found on all or nearly all the slides examined from the case at the same time, though not necessarily in large numbers. 3. The organism has never been detected anywhere except in smears or preparations made on glass slides.

Photomicrographs of these bodies are appended. These photographs were made by Mr. Charles Martin, of the Bureau of Science, to whom we desire to express our obligation. The first three plates are photographs of X-bodies found on a slide containing a smear of normal human blood, while the last three are of bodies that were found on a glass slide containing no specimen of any kind, but which had been stained with Wright's stain and the dry stain-film then rubbed off with a piece of gauze. The fact that they remain on the slides when the film of stain has been wiped off suggests that the X-bodies may be pits in the glass which mechanically hold minute portions of the staining fluid. The magnification in all cases is one thousand diameters. The bodies were very numerous on these slides, many being present in nearly every field, but it is almost impossible to procure good photographs of more than one or two on a single negative

Digitized by Google

owing to the difficulty of obtaining an accurate focus on several of them at the same time.

EXAMINATION OF EMERGENCY RATIONS AFTER LONG STORAGE IN THE PHILIPPINES.

In our quarterly report for June 30, 1910, record was made of an examination of emergency rations that had been stored from two to four years in Manila. This year the tests were repeated on the same lot of rations and the results are shown below.

On May 1st tests were made by culture and inoculation of two emergency rations, one prepared by the Armour Packing Company, Kansas City, Missouri, U. S. A., June, 1906, and received in the Philippine Islands August, 1906; the other by the American Compressed Food Company, Passaic, New Jersey, U. S. A., December, 1906, and received in the Philippine Islands April, 1908.

Suspensions were made from the chocolate and bread and meat components of the two emergency rations, using about one gram of each to five cubic centimeters of 0.85 per cent salt solution. From each suspension cultures were made as follows:

(a) Milk, heated after inoculation to 80° C. for ten minutes, and then incubated anaerobically in a Buchner jar for four days.

(b) Broth, incubated anaerobically for twenty-four hours, then plated anaerobically.

(c) Broth, incubated aerobically for twenty-four hours, then plated.

(d) Hiss' glucose serum medium, incubated aerobically for four days.

The results were:

1. Armour ration, chocolate component.

(a) Milk; acid production and clotting in one day, no gas production, decolorization in three days. A large, Gram positive, spored bacillus was present.

(b) Broth; anaerobic, plated; shows the same organism.

(c) Broth; aerobic; same organism.

(d) Hiss' serum medium; acid and clotting, no gas, same organism.

This organism is considered to be the *Bacillus subtilis*.

2. Armour, bread and meat component. All cultures sterile.

3. American Compressed Food Company, chocolate component. All cultures sterile.

4. American Compressed Food Company, bread and meat component. All cultures sterile.

Two cubic centimeters of each suspension were injected intraperitoneally into guinea-pigs. All the pigs at first lost weight but gradually regained it. The Armour chocolate pig lost the most markedly and did not regain normal weight until the sixth day, while the others were normal in four

Digitized by Google

days. After thirty days the pigs were autopsied and careful search was made for enlarged glands and other signs of infection. All the animals were found normal.

A member of the Board partook freely of the components of both rations, with no results except satisfaction of appetite. There was a difference in flavor between the two rations, that from the American Compressed Food Company tasting the fresher.

Conclusions. The presence of *Bacillus subtilis* is considered to be of no sanitary significance. From the above tests we concluded that both rations were free from bacilli of the meat poisoning group and from the tubercle bacillus and that both were safe articles of diet and had not been harmed by long storage in the tropics.

ULTRA-VIOLET LIGHT AS A MEANS OF KILLING AMOEBAE IN TROPICAL WATER SUPPLIES.

We are at present conducting a series of experiments to determine the effects of ultra-violet light on amoebae. Practical water sterilizers using this light have been manufactured and they deliver a large amount of safe water very cheaply. Experience with these sterilizers has shown that typhoid bacilli in water are killed by the rays in five seconds. Our experiments are as yet incomplete, but, so far as they go, they indicate that amoebae are killed by this light as readily as are typhoid bacilli. It may be that some such apparatus will solve the question of furnishing safe water to armies in the field, and the subject is of great interest in the Philippines since it may also simplify the problem of water supply for those communities that at present are too poor to adopt the expensive methods used by more favored cities to supply safe drinking water. The ultra-violet method will probably be found to kill the amoebae as well as the bacteria, while sand filtration cannot be relied on to remove the former organisms from the water.

DYSENTERY BACILLI CARRIERS.

Chapin, (Sources and Modes of Infection, 1910, page 43), in a very full discussion of the literature dealing with carriers and missed cases, gives

Digitized by Google

the following data with regard to bacillary dysentery. "Collins and Goodwin have studied the occurrence of the bacillus in well persons. * * * Duval found it in two instances, and Charlton and Jehle in two out of ten cases examined. Collins found it in two out of thirty normal persons, and in one three weeks after an attack of dysentery and in another child who had had a few mucous stools. Goodwin found the Flexner-Manila type of bacillus in one of fifty-nine well persons examined. Kruse says that all types of the bacilli have been found in well persons, and that these carriers are an important cause of the disease. * * * Kruse has found the bacilli in relapses after two years, and says that Drigalski and Lentz have made similar observations. He also cites Ford as finding ten carriers out of fifty persons examined in an asylum outbreak. Heuser found three carriers. Conradi, while studying a contact epidemic near Metz, found several carriers. Kuster isolated bacilli from a carrier who had probably been excreting since an attack years before. Kruse cites Kriege as saying that about four of thirty-six cases of dysentery become chronic, but usually the infection lasts only two to six weeks. Conradi found that in four of twenty-seven cases the bacilli persisted up to the end of the fourth week, while in eleven cases they disappeared by the middle of the second week."

During the past six months, out of sixty stools, from thirty-five persons, mostly typhoid suspects and convalescents, the Board has found four carriers of dysentery bacilli, one of whom had two organisms (Shiga and Morgan No. 1) in his stools.* The organisms isolated were the following:

(1) Bacillus of Shiga (motile strain), found in a typhoid suspect (American) from Fort Mills. There were no dysenteric symptoms.

(2) Bacillus of Shiga, typical non-motile type. This was found in the case of the Filipino at the Philippine General Hospital recorded below who also had the Morgan No. 1 bacillus in the stools, the latter being the preponderating organism. There were no dysenteric symptoms.

(3) Bacillus "Y," of Hiss and Russell, found in a case of fever, type undetermined, (Filipino) at Division Hospital. There were no dysenteric symptoms.

(4) Bacillus, Morgan No. 1,* found in two cases; one a Filipino, diagnosed as typhoid, in the Philippine General Hospital, specimens being obtained through courtesy of Dr. Donald Gregg; the other a typhoid suspect (American) from Camp Stotsenburg. Neither case showed dysen-

*Whether the Morgan No. 1 bacillus is actually an exciting cause of dysentery is not yet settled. This Board has isolated it in many cases of dysentery where no amoebae were found and where no colonies of the well recognized dysentery bacilli were detected after plating out the stools on Endo medium. Reports of these findings were made in "THE MILITARY SURGEON" for April, 1910, page 423, and for November, 1910, page 534.

Digitized by Google

teric symptoms. In the first case the diagnosis of typhoid fever was confirmed by a positive Widal test and by the isolation of *Bacillus typhosus* from the urine. The Camp Stotsenburg case gave a negative Widal reaction and a negative blood culture. Clinically, it was aestivo-autumnal malaria and ultimately plasmodia were found in the blood.

Besides these four, one member of the Board, in the winter of 1908–9, found the bacillus of Flexner in the feces of a typhoid suspect during the examination of excreta in the laboratory of the Surgeon General at Washington.

The identity of all these strains was established by their fermentation reactions on the sugars, their morphology and motility, and their indol production. The standard technic of Tobey (3) was used in indol determination.

It is evident that the incidence of dysentery bacillus carriers is as great as, if not greater than, that of typhoid carriers. *It is also clear that dysentery convalescents should be returned to duty only under the same restrictions as those now governing typhoid convalescents in the military service.* The importance of contact infection from carriers as a cause of bacillary dysentery is greatly emphasized by the findings just recorded. The detection of four dysentery bacillus carriers out of thirty-five persons examined shows as high a percentage of positive results as any quoted by Chapin, and serves to lay stress on his major proposition, that carriers and missed cases may be very great factors in the spread of disease.

MISCELLANEOUS WORK.

During the quarter a considerable amount of work has been done on the blond brunette observations, on the normal blood pressure in the Philippines and on the experiments to determine the fineness of mesh necessary to keep out Philippine anophelinae. These subjects are not yet ready for final report, but as regards the latter work it can be definitely stated that *Stegomyia calopus* can pass through sixteen mesh metal gauze. This is in accord with the observations of Darling in Panama, but opposed to the observations made in Havana and sent to the Board with the instructions for carrying out the test in the Philippines.

REFERENCES.

(1) Balfour, A. X-bodies in Human Blood. The Lancet, February 4, 1911, Vol. I, No. V, page 295.

Digitized by Google

(2) Horrocks, W. H., and Howell, H. A. L. X-bodies found in Human Beings and Animals. Journal of the Royal Army Medical Corps, Vol. X, No. 4, page 351.
(3) Tobey, E. N. The Methods of Testing the Indol Reaction. Journal of Medical Research, December, 1906, Vol. XV, No. 3, page 301.
(4) Smith, T., and Reagh, A. L. The Non-Identity of Agglutinins. Journal of Medical Research, August, 1903, Vol. X, No. 1, page 89.
(5) Ruedeger, E. H. A Paratyphoid-Like Bacillus Isolated from a Dog. Bulletin of the Manila Medical Society, June, 1911, Vol III, No. 6. page 94.

Digitized by Google

REPRINTS AND TRANSLATIONS

THE HOSPITAL SHIP.*

By Marine Oberstabsarzt Dr. zur VERTH.

I. NECESSITY AND MISSION.

IN navigation, particularly in vessels of war, we must always reckon upon a considerable number of losses in personnel from sickness. During the 17th and 18th centuries loss of almost the entire crew was common as hygienic means did not control the sick list. Not to dwell longer upon conditions of the period referred to above, the morbidity in the German Navy decreased one-half within two decades, namely from 1,097 0/00 in 1885-86 to 500 0/00 in 1905-06. Meanwhile a limit has been set to improvement in the general state of health; even if it were possible to still further restrict infectious diseases we could not by the greatest precautionary measures entirely prevent injuries and accidents, and the number of casualties on shipboard in battle does not appear to have changed materially.

In peace the complements of ships in foreign service may be relieved of their sick and injured in four ways.

First to be considered is their transfer to hospitals on the foreign coasts, a procedure which, assuming that the vacancies so created do not involve a vital loss in personnel, most quickly and effectively relieves the ship and enables her to regain her full freedom of action.

For most patients sent ashore even in a foreign port the transfer means an immediate improvement in conditions of vital importance, but only too often the prospect of recovery is poorer through the lack of an up-to-date medical and nursing personnel and of efficient hospital facilities in the foreign country. In many cases the transfer will involve a psychical shock to the patients who will be left behind in unfamiliar surroundings, perhaps among men of an unknown tongue.

The transfer of a severe case is conducive to the patient's welfare therefore only under especially favorable conditions.

In the case of contagious diseases many difficulties will arise.

*Translated by Surgeon T. W. Richards, U. S. Navy, from the Marine-Rundschau, July, 1911.

Digitized by Google

If suitable hospitals are lacking on the foreign station we must expect a prohibition to disembark patients of this class.

The second alternative consists in treating even the severe cases on board, but since provisions for the care of the sick, both in personnel and material, are limited on vessels of war, we cannot in many instances offer the afflicted the ideal conditions we would desire. This method also restricts the activities of the ship and is therefore not suited to the mission of a vessel of war.

Sending patients home from a foreign station is only to be considered in chronic cases and for such it may be adopted as the best procedure. For all cases running an acute course, and these are commonly in the majority, the favorable effects set in too late and there are also technical difficulties in execution.

The three procedures mentioned above are all unsatisfactory and better conditions are obtained by transfer to a hospital ship.

Such a vessel should have extensive facilities and its inception is due to the recognition of the increased value of each individual life. At present when hygiene seeks to compensate for the falling birth rate by the conservation of the individual and when with each individual his trained activities also vanish, and therefore every casualty means lost effort, lost money, perhaps also in another sense a lost battle, the sick must have—entirely aside from any humanitarian point of view—the best conditions that are procurable.

The hospital ship relieves the war ship, retains the sick in a familiar environment and combines a thoroughly efficient medical and nursing staff with an extensive medical equipment.

Therefore, under present day conditions, no group of warships with large complements can dispense with a hospital ship when cruising for any length of time outside of home waters.

As to the size of the complement to which one would assign a hospital ship, precise data cannot be given. It would depend upon the waters in which the squadron was to cruise, furthermore upon the valuation of each individual life.

In home waters the first and third methods of caring for the sick practically become one. Under these circumstances transfer to a home hospital is the best and most desirable procedure, though this interrupts the progress of the ship's exercises. That

Digitized by Google

may often make no difference, especially in the case of vessels acting singly, but it is frequently inconvenient and it is always costly.

In war, there is no possibility of transferring patients to hospitals in hostile territory, and even in home waters, a state of war will often prevent our seeking a home port. Considering the large number of wounded to be expected and the freedom of action absolutely necessary in a warship, their treatment on board is out of the question.

Their presence on board would also be a mental depressant to the rest of the crew. There remains then, transfer of the wounded to a ship specially provided for them—the hospital ship—or their shipment home.

For sending them home, if the seat of war is near the home coast, a seaworthy merchant vessel suffices if she has been specially fitted for the purpose—as an auxiliary hospital ship or hospital transport. (*Hilfslazarettschiff.*)

If a hospital ship is at hand, it can be utilized as such a transport the same as any other vessel, but it can also, as in peace times, serve as a floating hospital.

The farther the theater of war is removed from the home coast, the more the hospital transport must become like a hospital ship. Since the vicissitudes of war render it impossible to determine with any lasting degree of certainty the location of a sea fight, the hospital ship only fulfills every requirement demanded in preparedness for war.

If the drama of the Russo-Japanese War is repeated, with a naval battle as the opening of hostilities, or a meeting of the enemy's fleets on one of the first days of the war, hospital transports will not be on the spot. All the wounded will be dependent upon a hospital ship already in service during time of peace.

In war the loss of every trained man is heavy or irreplaceable and their baptism of fire invests the wounded with a special value. Of the Japanese wounded on shipboard during 1904-05, 80% were again in service during the war. Thus again—aside from the humanitarian point of view—foresight demands that the best means for the care of the wounded in battle should be provided,

Digitized by Google

and such means are only afforded by the hospital ship. Hence such vessels are indispensable to every sea power in war; in peace, only to those nations whose fleets make prolonged or distant cruises from the home station. Nations which have home ports in every sea will feel the need of a hospital ship in lesser degree.

But even for a sea power whose fleets continually remain near their own points of support, the hospital ship, even in peace, offers so many advantages that its maintenance during that period seems absolutely indispensable. In the first place it will afford the experience so necessary in war. It should be remembered that there is no essential difference between having no hospital ship at all and having one that cannot be utilized to advantage because of its lack of experience. Only years of practical work in peace will suffice as preparation for war.

Furthermore, the hospital ship makes it possible to curtail the means demanded for the care of the sick on vessels of war. This diminution pertains more to articles of equipment than to the allotment of space. Since every vessel must also be ready for service without an accompanying hospital ship, the space allotted for sick quarters must not be cut down. We may, however, in particular reduce the delicate and expensive medical apparatus, especially that used for diagnostic purposes, and economize in this way. Naturally this apparatus will be better placed on the hospital ship, where it will have to be provided only once and where the space will not be restricted. More positive and well-founded diagnoses will result and consequently more intelligent treatment. A more plentiful store of medical and surgical supplies will also be available.

Every branch of medical art will be represented by a specialist, particularly skilled therein, so that with a hospital ship it will be practicable to afford special treatment to a greater number of cases.

These better provisions in personnel and material shorten the duration of illness, decrease the morbidity, and also lessen the mortality. They also lessen the sickness on board each individual warship, since transfer of patients to a hospital ship is more easily accomplished than their transfer to a hospital on shore and is not restricted to a day in port.

Digitized by Google

This last circumstance in particular makes the war vessel more independent. The detachment of individual ships for the transfer of patients, almost always a very unwelcome occurrence, becomes avoidable. Contagious cases, or those suspected of being such, may be removed before they have caused harm and interfered with the plans of the command.

For the individual warship the hospital ship will always be available as a depot for medical supplies and personnel, and food supplies and water may be examined more completely and satisfactorily than is possible by the ship's medical officer.

It offers a place and a stimulus for the investigation and further development of naval sanitation. To the medical officers of the fleet it will afford opportunity for appropriate instruction, especially in the branches of marine sanitary service, by regular courses and discussions, and for medical officers in the reserve corps it will be the focus of their service education.

It will relieve the individual ship of the care of the dead.

Finally, a relief ship will always be available and ready to be dispatched upon the occasion of great catastrophes such as those of the recent past at Messina and Alesund.

From these subordinate purposes it will be possible to obtain the necessary experience for war, which, from the military standpoint, is most essential.

For a cruiser squadron on a foreign station a hospital ship is necessary, and for a fleet in home waters it is at least desirable.

In combination the foregoing reasons carry such weight that no sea-power can continuously do without a hospital ship.

II. PROBLEMS AND DESIGNS.

The problems of a hospital ship differ so greatly from the ordinary, that a vessel built for other purposes cannot adequately meet them. It is only with a knowledge of these problems that a hospital ship can be constructed, and the controlling factor in the design must be the ship's mission in war. Before all else she must relieve the fleet of its wounded during war and be so arranged as to insure their rapid recovery.

Previous to a battle she must relieve the fleet of its sick who would simply be a hindrance during the fight, and among them, in

Digitized by Google

addition to the serious cases, we would especially include those of a contagious nature and those suspected of being such. Eventually she must care for the shipwrecked in battle, and naturally will afford aid to the sick and shipwrecked of the enemy.

Neither friend nor foe will be in possession of serviceable boats after the battle and therefore the transfer of the sick and wounded will also devolve upon the hospital ship.

If another battle is imminent she must be in a position to hasten home herself with the disabled or to give them up to a hospital transport.

If command of the sea has been gained, the hospital ship will be available for the care and transfer home of the army's sick and wounded. If either of the belligerents occupies an insular position, hospital transports will be the only means of sending patients home, and even if the hostile powers are situated on the same continent, the hospital ship will materially relieve the railway and at the same time afford better conditions of transportation. Finally, in colonial campaigns, besides the transfer home of the sick and injured, we must consider the beneficial effects of the sea voyage upon those who have fallen ill in the tropics.

In time of peace, as in war, the primary mission of the hospital ship will be to receive and care for the serious cases from the entire fleet to which she is attached.

To promote accurate diagnosis and rapid recovery she should carry in her complement medical officers specially educated in the different branches.

The sick must be assembled in different wards according to the nature of their illness. Contagious cases and insane patients in partcular must be completely isolated and venereal cases somewhat separated from the rest. Naturally there should be separate quarters for the different grades in the service and day-rooms should be provided for all grades. There should be individual compartments for sick prisoners. The day-rooms would serve as resting places for those only slightly ill.

All sick quarters should be provided with their own bath rooms and closets, the latter amounting in number to five per cent of the beds. A few single rooms should be available for moribund cases and those, newly received, in which the diagnosis is still undetermined.

Digitized by Google

Chemical and bacteriological laboratories should be fitted up for diagnostic purposes and the analysis of water and food supplies.

An X-ray outfit and a room equipped with the various kinds of electro-medical apparatus will aid in making medical and surgical diagnoses while a dark room will serve for eye, nose and throat cases.

Sun rooms, a medico-mechanical equipment, and a room for medical baths constitute auxiliary therapeutic measures.

Operating rooms in sufficient number and size should be so located as to be easily accessible from the surgical side. Near the operating rooms for clean and for septic cases, both of which should have an overhead light, a preparation room and an instrument room should be provided, if possible, and also an anaesthetizing compartment. Adjoining the venereal ward there should be its own, less pretentious, operating room.

The dentist also should be provided with a special work-room, and, in a workshop devoted to his use, the mechanician would sharpen and repair the instruments of the hospital ship and of the entire fleet.

Lifts should be provided fore and aft and from the contagious wards, for the transportation of patients from deck to deck.

The mortuary and dissecting room may be combined.

An abundant store of medical and surgical supplies will make the hospital ship self-sustaining and enable her to make good the deficiencies in the fleet. Among these stores should be included food for the sick.

Ice machines will manufacture ice for medical purposes, as needed, and cold storage rooms will make it possible to carry large quantities of fresh meat.

Live cattle and fowls may be kept in a shelter on the upper deck.

Distilling apparatus will render the ship independent of shore water for drinking purposes on foreign stations.

A laundry equipment will make it unnecessary to send washing ashore and prevent its accumulation on board. If advisable the soiled articles will first be passed through the disinfecting chamber, which will also be available for infected clothing, bedding and other formites from the entire fleet.

Digitized by Google

Mangle and dry-rooms will serve to expedite the laundry work.

A large central galley will do the cooking for the sick.

A diet kitchen for the preparation of meals for contagious patients should be located near their wards and, with the latter, should be isolated from the rest of the ship. Similar ones on a moderate scale should be available for the other large wards, while a special galley should be provided for members of the commissioned and warrant officers' messes.

A large room should be allotted for the scientific library, in which the current professional journals would be displayed. It would also serve as an assembly room and place for scientific discourses.

Searchlights will permit illumination at night during the reception of patients or in searching the sea for the shipwrecked.

Besides signal apparatus and searchlights, wireless telegraph should be provided as a means of communication. A gun may also be mounted for signal purposes.

In seeking to bring order out of this chaos of rooms let us take this maxim as a guide: The vesesl's own crew is to be kept apart from the patients and their attendants.

It is self-evident that patients should be berthed on the upper decks. Furthermore it is needless to demonstrate that the most serious cases should be given the most favorable quarters, therefore those on the highest deck. Since grave cases pertain both to medical and surgical wards, it would seem advisable not to devote a single deck to either of these sections, but to assign one to the upper and lower berth decks immediately *forward* of the smokestacks, the other to the same decks *abaft* this space.

As smoke and cinders sweep chiefly over the after portion of the ship, the surgical ward with its operating rooms, with their overhead openings for light, should be given a position forward, while for the medical wards with their sun chambers, a location aft, more sheltered from the wind, seems suitable.

The dentist and mechanician belong in the vicinity of the surgical section, while the apothecary (pharmacist) should be near the medical wards. All three should have direct daylight.

It is desirable to unite in one group of compartments the rooms for contagious cases and for disinfection, the dissecting room and

Digitized by Google

mortuary, and the laboratories, locating the entire group in the after part of the ship with the mortuary and autopsy room well in the stern.

The contagious wards are accessible only from the upper deck, whence closeable hatches or shafts permit soiled linen to be transferred directly to the disinfecting room. Enclosed passageways connect these wards directly with the laboratories and dissecting room. The latter communicate with each other without going to the deck above, and may be conveniently reached from the rest of the ship.

The disinfecting room may be located on a lower deck and should be divided into clean and infected portions. The linen chute from the contagious wards should lead into the latter and be properly shut off from the decks through which it passes. The laundry should adjoin the clean side, while the drying room should be situated in the vicinity of the smokestacks. The laboratories and dissecting room require good light.

Since this group of rooms fills the after part of the ship, the medical officers' quarters, writing rooms, library and assembly rooms will be conveniently located forward, the space under the forecastle being most appropriate. The ship's officers are appropriately quartered on the boat deck near the bridge.

Venereal cases and skin diseases will be given a place forward on the upper berth deck ahead of the surgical ward, while insane patients and prisoners are quartered amidships opposite the smokestacks on the lower berth deck.

Sick officers are given single rooms and messes on the upper deck (i. e., under the boat deck), forward of the smokestacks.

The operating rooms are forward and are connected with the surgical section by a lift.

Sick warrant and junior officers are provided with quarters on the after part of the upper deck. Forward of these is a recreation room and some single rooms for the crew; galleys for commissioned and other officers separate the above from the ship's funnels. The main galley is on the upper deck between the smokestacks.

On the lower berth deck, under the ward for skin diseases, are the rooms for the warrant officers of the ship and the quarters for the seaman branch. Similarly, the lower grades of the hos-

Digitized by Google

pital corps are quartered on the same deck, abaft the medical ward, that is beneath the contagious ward. The engineer force is located amidships, abreast the funnels, on one of the berth decks. The storerooms are in the bow, beneath the lower berth deck; the laundry is similarly located, well aft near the disinfecting rooms.

The rooms so distributed must have certain attributes in accordance with the mission of the vessel herself.

Before all else, we must consider the practicability of cleanliness. Sharp angles should be obviated by round corners. Linoleum, terazzo or tiling are preferable to wood as deck coverings and wood should be used only on decks exposed to the weather.

The ship should be so constructed as to afford the fewest possible cracks and crevices for rats, mice and roaches.

All quarters for the sick must be insulated in the outer walls so as to prevent rapid changes in temperature. Quiet rooms and those for cases of mental disease must be insulated on the inner walls also.

Natural and artificial ventilation are required in all sick quarters; for the group of rooms for contagious cases, also the water-closets, pantries, and similar compartments "exhaust" should be used, for the rest "supply."

All sick quarters must have natural light. As an artificial source, electric light is to be preferred. The operating rooms should be given particularly favorable consideration. In all sick quarters "touch buttons" for the lighting apparatus should be regularly distributed.

A steam or water heating system will give a suitable temperature to all living spaces in cold weather; in the operating room 20° C. must be obtainable in the coldest climate.

The doors and passages must be wide enough to admit the apparatus used in transporting patients.

Wide promenade decks and convalescent rooms should furnish abundant open air retreats.

Sick beds should always be put up in contiguous positions; several beds, one over the other, are not permissible. Each patient should be allotted at least fifteen cubic meters of air space. Numerous hammock hooks will provide for an increased capacity in case of necessity.

Digitized by Google

The special mission of the hospital ship must always be a determining factor in the design of her hull. Above all it must be such as to insure a slow and moderate degree of roll and pitch. At the same time she must be able to reach the speed of her squadron.

Vibration will interfere with the mission of a hospital ship. To lessen it, care must be taken in the choice and installation of the main and auxiliary engines.

Her bunker capacity must be ample; on the one hand she must have a large steaming radius, and on the other coaling-ship is, for the patients, an unpleasant and even injurious operation, and therefore to be infrequently undertaken. Oil fuel offers many advantages for a hospital ship.

The size of the ship must not be too limited. While the auxiliary hospital ship must be able to go alongside a warship, in order to take over the wounded directly, this will, in general, be impracticable to the hospital ship. With too small a ship, aside from the fact that she would be too lively in a sea way, the expensive and troublesome equipment which would still be necessary would not be worth while. The greater her bed capacity, up to a certain limit, the more economical she will be. On the other hand, for war purposes, often also in peace, two somewhat smaller hospital ships might prove more useful than one large one. We may, therefore, accept as an appropriate medium a displacement of from 5,000 to 6,000 tons, which would correspond to a bed capacity for 250 to 300 sick and wounded. On the other hand, if the hospital ship is built for a particular purpose, such as the continuous accompaniment of a fleet, her bed capacity will be determined by the sick list of this fleet, as shown by the regular statistical reports.

Rapid and easily manipulated hoisting gear should be provided for an ample equipment of boats.

Two ports are provided on each side for receiving the sick and wounded.

Lifting apparatus, one forward and one aft, and one solely for contagious cases, will permit the transportation of the sick through all decks.

Adequate subdivision by watertight bulkheads will give security against sinking in case of contact with mines or grounding. The

Digitized by Google

fire extinguishing equipment must be ample, in plain sight and convenient to handle.

In addition to the Geneva Cross at the mainmast—a red cross on a white ground—the white painted hull with a green stripe, one and one-half meters broad, will serve as external distinguishing marks. The boats should likewise be characterized by their painting and the Geneva Cross.

I must here pass over all the particular problems, such as the special equipment of boats for the transfer of patients, lifting apparatus for the sick, possibly apparatus for the direct transfer of patients from ship to ship at sea,* methods of transportation on board and many others. These questions furnish the occasion for much research. Meanwhile they involve too many details to be of general interest.

III. MODEL HOSPITAL SHIP, DESIGNED FOR THE GERMAN NAVY.

The experience of the last war has indicated that an average casualty list of twenty per cent of the complement may be taken as a basis for our peace preparations. Of this number four per cent may be regarded as killed outright, eight per cent as severely wounded, and eight per cent as slightly wounded. Naturally the figures are not absolutely reliable throughout. The losses will sometimes be above and at others below this estimate. The former situation was not uncommon in 1904-05 on the Russian ships while the latter prevailed on those of the Japanese.

The complement of a modern fleet of 16 battleships with four large cruisers, small cruisers and torpedo craft sums up to about twenty-five thousand all told.† Since only the severely wounded need to be transferred to a hospital ship, the fleet will require after battle about two thousand sick beds. For the surplus of

*The only apparatus actually designed for this purpose, so far as I am aware, is that devised during the Spanish-American War by Surgeon-General C. F. Stokes, U. S. N. It is described and illustrated in his recent article on "Naval Surgery" in the American Practice of Surgery, 1911. T. W. R.

†If the complement is increased the following computation must be modified accordingly.

Digitized by Google

wounded after a serious battle the reserve spaces come into use. It will thus result that each squadron requires two hospital ships of 500 beds each, or four of 250 beds. It is impracticable and unnecessary to keep this number in commission during peace. It will have to be made up by ships selected in peace time from the merchant marine. It seems important to follow the Japanese and build certain merchant ships from the very beginning with a view to their conversion into hospital ships in time of war and to take this into consideration in their design and construction.

One cannot, however, base the size of a hospital ship exclusively on war conditions. From the foregoing statements it follows that the German home fleet does not absolutely need a hospital ship, but that, at the same time, it can hardly in the long run dispense with one. In attempting to determine the necessary size of such a vessel I arrive at the following results.

In the last five years there were, on an average, 12.3 per thousand of the complement of the ships in home waters sick in hospitals ashore. Now, without doubt, one will more readily determine to transfer a patient to a hospital ship than to a hospital ashore, and, moreover, cases accumulate at certain times—especially in the spring months—while they diminish during other seasons. Furthermore, the hospital ship must be prepared for all possibilities, particularly sudden epidemic outbreaks and catastrophes.

As an offset to the above, the hospital ship would be relieved to a certain extent since on the one hand, the unserviceable sick would be transferred to a land hospital as soon as possible and on the other, a quicker restoration to duty in the fleet could be accomplished.

From all this it follows that a hospital ship with beds for 20 per thousand of the complement of the division could fulfill all probable demands. For a fleet with a complement of 25,000 men one hospital ship with 500 beds, or two with 250 each, would therefore be required. In the home battle fleet—at least so long as it remains fixed—the transfer to the land hospital can be so regulated that a still smaller percentage of beds will suffice.

The cruiser squadron needs a hospital ship more than the battle fleet. The Fleet Law, as amended in 1906, provides for a cruiser squadron of four large cruisers for foreign service and its

Digitized by Google

complement will consist of about four thousand men. It seems necessary to increase these figures about fifty per cent, because it is not improbable that small cruisers will also be in company, at least on stations in outlying waters. Since our ships on foreign service, in general, retain their sick on board, the number of sick transferred to hospitals ashore can not, in this case, be used as a basis for estimation. An approximate result may be attained by considering the relative morbidity of the cruisers and that of the home fleet and estimating the probable number of transfers accordingly.

The sick rate in extra-European waters is everywhere higher than on the home station. In East Africa it more than doubles, and an accumulation of cases occurs there in the malarial season. From all of which it appears that there must be at our disposal about double the proportion of hospital ship beds required at home, that is forty per thousand. The hospital ship for the cruiser division must therefore have 240 beds, or 250, the same as the squadron hospital ship at home, this slight increase being amply justified in view of possible epidemics of tropical diseases.

The beds of the contagious wards, about twenty in number, and usually vacant, have not been included in the above, so that the ideal German hospital ship—if I may so call it—would have a total capacity of 270 beds.

If the total number of beds for the hospital ship on home and foreign stations remains the same, the distribution to different wards will be varied in accordance with the distribution of the classes of diseases. It therefore seems necessary, to so plan the hospital ship that this apportionment may be accomplished without further calculation so that the vessel may be employed on either the home or foreign stations.

The 250 beds will necessarily be so allotted that about seventy-five belong to the surgical station, seventy-five to the medical, and forty-five will serve for skin diseases (Hautkranken). Of the remainder, twenty-five are required in rooms of five, three and two beds each, for junior and warrant officers, and twenty in rooms of four and two beds for commissioned officers. The ten left over are assigned to single rooms, five for prisoners and five for insane patients. Eye and ear cases will belong to the surgical section.

Digitized by Google

Separation of some beds in single rooms is advisable for both the medical and surgical wards. They should be used for cases which are severe, moribund, just received or newly operated upon.

To all patients 15 cbm. of air space should be allotted and in the single cells it must be somewhat greater. Among the officers' rooms it is advisable to design some that are especially capacious for officers of high rank.

As I hope I have shown, even the most fundamental requirements cannot be satisfactorily fulfilled by a merchant vessel converted into a hospital ship. I therefore commissioned the naval architect, A. zur Verth, to draw up the plans of a hospital ship based upon the foregoing researches and data and upon the crews' complement, a matter which will be considered further on. Plans of the longitudinal elevation and of the upper and lower berth decks, according to these designs, are shown in the drawings on pages 878-79.* Complete details may be found at the "International Exposition of Hygiene" in Dresden.

The ship in round numbers is 124 m. long, 15.3 m. beam, has a draft of 5.3 m. and a displacement of 5,000 tons; the coal capacity is 900 tons, and the speed 19 knots.

For professional treatment, nursing and attendance for the sick and wounded the following staff of officers will be required: 1 Medical Director or Medical Inspector as Commanding Officer (*Leiter*), 4 Surgeons as ward medical officers and for research work, and 5 assistant or passed assistant surgeons, that is, one associated with each senior medical officer and one with the Chief Surgeon. The junior medical officer engaged in research may be assigned to duty in the squadron if a vacancy occurs. Besides the above, the complement includes a dentist and a pharmacist, the latter among other duties, attending to the chemical investigation of food supplies.

The enlisted personnel is as follows:† Chief Surgeon's office, 1 Chief Hospital Steward, 1 Hospital Steward, and 1 Hospital Apprentice, 1st class; Medical and Surgical Sections, each, 1

*These pages refer to the original paper; the plans have not been reprodueed. T. W. R.

†There are no exact equivalents in our service for some of the German grades, and the terms used here are merely relatively correct. T. W. R.

Digitized by Google

Hospital Steward, first class, as ward-master, and 2 Hospital Stewards to stand watch; venereal ward, 1 Hospital Steward, first class, as ward-master, and 1 Hospital Steward. For the laboratory, pharmacy, operating rooms and officers' rooms, each 1 Hospital Steward; for the medical and surgical sections, each, 3 Hospital Apprentices and Hospital Apprentices, first class. For the venereal ward, officers' rooms and warrant officers' rooms, each 3; for the operating rooms 2; for the dentist, pharmacist and laboratory, each 1 Hospital apprentice or apprentice, first class. The personnel for the contagious ward is conjointly supplied from the medical and surgical wards. As a reserve there should also be 1 Hospital Steward and 2 Hospital apprentices. All told there are 1 Chief Hospital Steward, 3 Hospital Stewards, first class, 12 Hospital Stewards and 35 Hospital apprentices and Hospital apprentices, first class, a sanitary personnel of 51 men, from which in urgent cases a reserve can be drawn for the fleet.

Of the hospital corps 3 men are assigned to the Chief Surgeon, to the medical section 12, to the surgical—with operating and X-ray rooms—15, to the ward for skin diseases 5, dentist 1, pharmacist 2, laboratory 2, warrant officers' rooms 4, and to the commissioned officers' rooms likewise 4. The regular naval sanitary force may be supplemented in part by volunteer nurses.

It is deplorable that, in general, female nurses will not be employed on hospital ships. Their presence would mean for the sick a comforting certainty of good care, and for the medical officers, the encouraging assurance that their efforts will be supplemented by devoted nursing.

The numerical strength of the medical personnel is constituted so as to provide for the administration of a ship employed to its full bed capacity. On a hospital ship during service in times of peace, with fewer patients, some decrease would be possible; on the other hand, in war an increase along certain lines would be necessary.

While I give in the following summary a list of the remaining portion of the ship's complement, I shall not enter into a discussion of the number and choice of the individual ratings. They have been based less upon example than upon consideration and make no claim, therefore, to being incontestable.

The Sanitary personnel will be furnished by the Navy. It should consist, as above stated, of:

Digitized by Google

10 Medical Officers.
1 Pharmacist.
1 Dentist.
51 Hospital corps men, including 1 Chief Hospital Steward.

The navigation of the ship will be in the hands of officers of the merchant marine:

1 Master.
3 Watch officers.
1 Chief engineer.
1 Paymaster.

The following would comprise the civil employees on board:

1 Instrument-maker.
1 Barber.
2 Cooks.
2 Stewards.

Of the seaman branch there would be:

4 Warrant officers.
13 Petty officers.
4 Artificers.
4 Wireless Operators.
40 Seamen.

Of the engineering department:

7 Warrant officers.
15 Machinist's mates.
50 Firemen and coal passers.

The hospital ship would therefore have a complement of 212 all told. It would consist of 18 officers, or those of corresponding rank, 12 Warrant officers,* 6 civil employees (cooks, waiters, etc.), and 176 men, of whom 43 would be petty officers.

The essential feature of my work, as I see it, lies in setting forth an appropriate arrangement of space on the hospital ship. It may, perhaps, be necessary to make many changes and improvements, still, I hope that the investigations mean a renewed incentive towards the high aim of assuring to our sick and wounded the best conceivable means for their recovery, and thereby again restoring to the fighting efficiency of the fleet, in the shortest time, the greatest possible number of these doubly valuable combatants.

---

*Includes the so-called Chief Hospital Steward. T. W. R.

Digitized by Google

ORGANIZATION OF MEDICAL AID TO THE WOUNDED AT THE BATTLE NEAR BENDERGES (PERSIA).*

By Junior Naval Surgeon W. W. SOROKIN.

THE port of Benderges, in the north of Persia, lies on the southern shore of Astrabad Bay, about seven miles from the Island Ashur-Adĕ (on maps—also designated Ashurada), a town of some importance as it was the center of trade between northern Persia and Russia. The city is inhabited principally by tradespeople, the main contingent consisting of Persians, Armenians and Russians. The Russians have a consular agency, a bank and several business firms.

The battle below referred to was part of the strife for the Persian throne.

October 10 (22) a contingent of 700 government troops under Sardar-Mochi arrived in the town and encamped at its outskirts. The Turkmen, partisans of Mohamed-Ali-Shah, anticipating the invasion by the government troops of their desert (steppes) prepared on their part an attack on the camp. As a clash between the two forces could be expected any moment the chief of the Russian naval station at Astrabad (see any good map of Persia), Captain Kondoguri, ordered the gunboat "Karso" and the dispatch boat "Astrabad" to Benderges.

During the night of October 10 (22) and 11 (23) a column of Turkmen, under Hachar-Khan, marched by sea and land, surrounded the Persian camp and commenced firing. Being better shots than the Persians, they soon gained the upper hand and the Persians, leaving their dead and wounded (about 20), retreated. Shooting continued even through the streets of the city. The battle, which assumed the aspect of individual skirmishes, continued three days and terminated in the utter rout of the government troops.

After this followed robbery by the victorious Turkmen of the deserted houses and stores. The peaceful citizens went to defend

*Abstracted for The Military Surgeon from the December, 1911, issue of the "*Morskoj Vrach*," by Gustavus M. Blech.

Digitized by Google

the consular agency, while the Russian citizens had been taken aboard a steamship.

There was sign of life only in the courtyard of the bank. The wounded, non-combatant women and children had collected there, and the noises emanating from that locality were heart-rending, Nothing but the bare ground was available—indeed a sad picture.

For their protection a detachment of armed sailors from the two Russian vessels surrounded the victims.

To render first-aid to the wounded, exhausted from hemorrhages, two non-commissioned officers and one private of the hospital corps were sent by the vessel commanders.

The author pays a glowing tribute to the bravery and skill of the two feldschers.

On the first day they dressed forty wounded and extracted two bullets themselves. To appreciate their difficulties it must be remembered that the wounded were irregularly distributed, lying on the bare ground even without a blanket or protection against the sun, eaten up by flies and suffering physically as well as mentally. Deserted by their own military surgeons, (who ran away with their commander), they showed the deepest gratitude for the ministrations of the Russian naval feldshers.

It must be remarked that the gunboat went to Benderges without its medical officer. He (the author) in his capacity as chief of the naval hospital of Ashur-Adé remained on the island.

But on the evening of October 13 he received an order to take from the lazaret the necessary instruments and dressing material and to proceed in the morning to Benderges to render medical aid to the wounded.

Early on the 14th he proceeded to establish a dressing station in the courtyard of the bank, for which purpose a tent was pitched. But no table or substitute for it could be obtained!

Even water for antiseptic solutions was obtained with difficulty, to say nothing of quenching the thirst of the sufferers.

Dressings were unpacked and placed on sheets of paper spread out on the ground. Twenty-five wounded were attended to on that day. The majority had gunshot wounds, some saber wounds and one bayonet wound. Many of the gunshot wounds astounded him by their appearance. With a comparatively small wound of

Digitized by Google

entrance they had astonishingly large wounds of exit. The Turkmen's leaden, non-jacketed bullets of large caliber had a very destructive effect. As an example may serve the wound of a Persian, although hit in a straight direction through the abdomen in the region of the small intestine, the omentum was prolapsed through the wound. The patient when seen was in profound shock due, undoubtedly, to an internal hemorrhage, and died in spite of the application of hot bottles and subcutaneous injections of camphor oil.

In addition to this case, the following is a brief register of those treated:

1. Sub-lieutenant Lotfe-Ali-Khan. Wound of upper part of left thigh, on its outer somewhat anterior aspect and below the hip-joint. The wound went from here through the foramen ovale into the pelvis, wounding the bladder. Wound of exit external surface of right thigh. The wound of the bladder, in all probability, is extra-peritoneal. Pulse good. No urine is passed in spite of tenesmus, and the bladder continues empty for four days. The catheter develops only drops of blood. A liquid escapes from the wound of exit strongly resembling urine. On the fifth day somewhat bloody urine passed through the urethra. Excellent, normal recovery without suppuration. Complains of pain in right hip and both testicles. Convalescing.

2. Major Raphael-Khan has a bad gunshot wound in the right knee, involving fracture of the patella and the bones of the articulation. Dressing. In view of the indication for resection evacuated by steamship to Baku.

3. Yusuph-Ismial-Oglij. Gunshot wound of right forearm with insignificant injury of the olecranon. Immobilization.

4. Hadji-Aga-Matneim. Wound in left buttock. No wound of exit. Probe gives no clew to location of bullet, which was not extracted. Mere dressing.

5. Khajdar-Aga. Wound in upper part of left thigh, nearer its external surface. Bone uninjured. Hemorrhage had ceased. Dressing.

6. Aga-Seid-Turab has a wound of entrance in the middle part of the right shoulder-blade. No wound of exit. The wound produced fracture of the scapula. Bullet extracted.

Digitized by Google

7. Ali-Kuli. Wound of left thigh, a bad one, with indication of injury to the femur.

8. Kandj-Ali. Wound of entrance on external surface of upper third of left arm—wound of exit on anterior surface of shoulder. Injury (slight) of humerus.

9. Kuljam-Hassan. Wound of lower jaw in the territory of masseter muscle, a little higher and forward of the mandibular angle. The whole jaw is considerably comminuted. Profuse hemorrhage. Operative necessity for the removal of bullet and fragments. Bad case.

10. Kerbalaj-Ismail. Gunshot fracture of left humerus in its upper third. Splints.

11. Aga-Ali. Bad wound of left thigh. Wound of entrance in middle third, outer aspect.

12. Aijub-Sadukh. Wound of left buttock, three fingers outwards from the anus. The bullet passed obliquely through the soft parts, finding its exit through the right third. Severe pain during defecation and blood in the stools indicate injury of the rectum.

13. Asmail-Mahmut. Shot through left wrist,—no fracture could be identified.

14. Ali-Asher. Bad wound of upper third of left arm. Dressing.

15. Mahmet-Ali. Fracture of middle and index fingers of left hand. Upper phalanx of the middle finger torn off.

16. Amman-Alla. Gunshot of palm (right) between large and index fingers. No fractures.

17. Hussejn-Ali has two wounds. One bad one in the chest in its upper part (left). Another, also bad one, in right arm. No symptoms of injury to the lung. In the first few days there was some blood in the expectoration, but even this ceased soon.

18. Gadji-Aga-Mahmet. Bad wound of left arm.

19. Nursa-Kutchik-Khan. Bad opening on anterior surface on the very right margin of the sternum,—the would of exit being found on the inner side of the right shoulder, having passed through the soft parts of that region without injuring the larger blood vessels or bones. In a few days slight rise of temperature and pleuritic exudate. Slight hemoptysis. No pneumothorax. Convalesced satisfactorily.

Digitized by Google

20. Ali-Akber-Khan. Bad wound of left shoulder. Wound of exit on the inner side in upper part. Bone normal.

21. Hussein-Ali has three saber wounds (a) in the region of the left elbow—length 10 centimeters, (b) on the external surface of the palm of the left hand, exposing the carpo-metacarpal articulation, and (c) a wound over the left frontal prominence, penetrating into the skull. Dura mater is not injured. The fractured bone was somewhat adjusted and the wound sutured.

22. Name unknown. Bayonet wound of abdomen. When brought for dressing he had a distended abdomen, thready pulse and vomiting. In spite of treatment he soon died.

23. Name unknown. Gunshot wound of right chest—the bullet entering the thorax in the 2nd costal interspace and reaching the inferior margin of the scapula. Pulse bad, patient very weak from hemoptysis. Died in a few hours.

Medical aid was not limited to mere dressings. The majority of patients were under the observation of the medical officers for several days. October 20 (Russian) the service terminated, there remained only ten patients in the yard of the bank, eight of whom were removed to a hospital for further treatment, while two could be discharged cured.

Ali-Kuli and Aijub-Sadukh (cases 7 and 12) were sent to the naval hospital at Ashur-Adé Island.

Cases 19, 8, 6, 3, 4 and one Lotfe-Ali-Khan were evacuated to Baku because able to stand a longer journey by steamship.

The abstracter desires to add that in the translation of the diagnoses and treatments made and given he has literally followed the original article. The paucity of details does not, however, in his opinion, detract from the scientific value of the contribution, nor can it be denied that an opportunity to get even a glance at the statistics of non-modern gunshot wounds, should be considered a privilege.

The author worked under the worst imaginable conditions and being single-handed, hurried and anxious to do as much as possible in the shortest possible period, no opportunity was given him to study the injuries with care and in detail.

But in the light of old experiences with leaden bullets as compared with jacketed projectiles used by modern armies, the curative results certainly offer much food for thought.

Digitized by Google

CURRENT LITERATURE

Titles marked with an asterisk (*) are abstracted below.

AUSTRIA.

Der Militärarzt.

July 7 and 21, 1911.

1 *Report on the Origin of Typhoid Epidemics. Dr. Soltan v. Ajkay, Regimental Surgeon, Director of the Laboratory.

August 11, 1911.

2 A Standard for the Physical Examination of Recruits. Dr. Rudolpf Uhlirz.

3 Remarks on the Provisional Regulations for Sanitary Troops of the Austro-Hungarian Army. Dr. A. S.

September 22, 1911.

4 The Hygiene Exposition in Dresden. Dr. Myrdacz.

1. **Origin of Typhoid Epidemics.**—In December, 1909, and January, 1910, there was an explosive outbreak of typhoid in the barracks of the 2nd Battalion of the 22nd Infantry. Fifty-six persons out of a total of one hundred and seventy-seven, or 32%, contracted the disease. A nearby garrison and a civil population of 10,000 were not attacked. The explosive character of the outbreak pointed to a water borne infection and two wells used by the garrison were examined.

Both wells were shallow, located in the court yard, and protected against surface contamination with a double layer of planks. A cell-pool and drain, cement lined, lay at a distance of 65 meters. The wells had been in continuous use for 20 years without being under suspicion.

One and one-half liters of water from each well was prepared for examination by adding to each liter in a tall cylinder, 10 c. c.

Digitized by Google

sterile 10% soda solution and 5 c. c. of a 10.3% alum solution. The resulting precipitate was allowed to sediment for 24 hours, the clear supernanant fluid decanted and the sediment plated on nine Conradi Drigalski plates. From these typhoid bacilli were recovered in large numbers, showing that both wells were contaminated. The author was able to trace the infection of at least one well to contamination with urine and perhaps feces from the first case, a non-commissioned officer, who was seen to urinate in the court-yard, near the well, a day or two before going to hospital. The epidemic ceased promptly and there were no deaths.

F. F. RUSSELL.

BELGIUM.

Archives Médicales Belges.

January, 1912.

5 Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax. M. Thooft.

February, 1912.

6 The Treatment of Traumatic Hemorrhage of the Lung. M. Dejardin.

7 The Separation of Halogens by Distillation. M. Vigneron.

C. F. CRAIG.

FRANCE.

Archives de Médecine et Pharmacie Militaires.

February, 1912.

8 Etiological Studies on Diseases of Soldiers. Labit.

9 Otitis Media Complicated by Parotid Abscess and Phlebitis of the External Jugular. Farganel.

10 *Investigation of Healthy Meningococcus Carriers from the Bacteriological Laboratory of the 10th Army Corps. Roussel and Malard.

10. **Investigation of Healthy Meningococcus Carriers.**—During a year 2,270 cultures were made to discover the presence of the

Digitized by Google

meningococcus on the mucous membrane of the nose and throat. The technique was the inoculation serum agar tubes with mucous and the identification of suspicious colonies by fermentation reactions and agglutination. The most interesting results were as follows: among 749 soldiers not in the same quarters with a case of meningitis 7% were carriers; among 323 men in the same quarters, 13%; among 28 men near the bunk of the affected man, 18%; among the personnel of the hospital, 17%. Most of the cases carried the organism less than 20 days under disinfection of the nasopharynx, but some cases were resistant and carried the organism up to 90 days. At least two negative examinations were required before a carrier was released. The opsonic index of the chronic carriers was above normal.

H. J. NICHOLS.

Archives de Médecine et Pharmacie Navales.

February, 1912.

11 Four Years' Service (in tuberculosis work), Naval Hospital, Rochefort. M. le Dr. A. Bartet. (Conclusion.)
12 L'Arséno-Benzol. M. le Dr. Baril.
13 *Transport and Transmission of Wounded on Board Modern Ships. Dr. Renault.

13. **Transportation of Wounded on Modern Ships.**—If the very complicated and ingenious device of Dr. Renault for the transportation of the wounded in the Navy does not, in the opinion of many who have endeavored to solve the problem, accomplish this much, it may at least call attention to some aspects of the situation. Dr. Renault, Principal Physician in the French Naval Service, presents the new device after a fair trial of the French brancards, the gouttière Auffret and the hammock of Guézennec in all of which Dr. Renault can find no adequate solution to this Naval ghost of Banquo which will not down. Is it not time that the various sanitary services should begin to realize that the solution of this problem is something akin to the effort of attempting to build upon the sands; a problem extremely difficult of even partial solution, were the factors permanent but certainly impossible in the tideway of almost daily change? The great variety and number of devices submitted is in itself the best evidence that no

Digitized by Google

apparatus of convincing merit has been hit upon. At the 1907 meeting of the Red Cross in London a committee at Earls Court passed upon the merits of the Auffret gutter, Stokes' stretcher and Lung's stretcher and the prize was awarded to Auffret's device; apropos of which let it be understood that though able men like Sir Frederick Treves were upon the committee they had no knowledge whatever of the practical operation of such devices. And now Dr. Renault of the same service as Auffret tells us "The victim of a wound, or bomb placed in the gouttière Auffret on the floor of the fire-room cannot be carried above without maneuvers liable to transform a relatively light into a grave lesion. The discussion of this subject by Dr. Renault is very practical and his experiments with the devices issued by his service were made in the case of three badly injured men who had fallen eighteen feet below decks on the "Mirabeau." The hammock of Guézennec which was in the past "a precious instrument when it was required to send the wounded below, or from helm above, or cross large and accessible passages," is today useless and Auffret's gutter, a prize taker five years ago, is today declared dangerous. Most of this difficulty arises from the constant change in the factors. What will a battleship be ten years hence, when Maxim declares there is no armor in use today that will stop a sixteen inch Harveyized projectile?

In our service the experience is similar; Gihon and Gorgas were all right for the conditions of their time—but there is no device known to us today which could stand the test of modern battle conditions. The best stretcher, all in all, is still the back of a comrade, and this will continue to be the case until the problem of the evolution of a modern battleship more closely approaches some definite settlement.

J. C. Wise.

Bulletin de L'Académie de Médicine.

January 23rd, 1912.

14 Report of the Commission of Infant Hygiene. M. Doleris.

January 30th, 1912.

15 The Treatment of Cerebro-Spinal Meningitis. Cantas. Report by M. Arnold Netter.

Digitized by Google

February 6th, 1912.

16 Deaths from the Use of "606." M. Gaucher.

February 13th, 1912.

17 No papers were published in this number.

February 20th, 1912.

18 Report of a Death from the Use of "606." M. Netter.
19 Persistence of Meckel's Diverticulum. M. E. Kermissom.

C. F. CRAIG.

Le Caducée.

January 6, 1912.

20 *Antityphoid Vaccination. Prof. Chantemesse.
21 Discussion of Beriberi, Oriental Sore and Larval Malaria.
22 Leprosy in the French-African Possessions. Jeanselme.
23 Two Cases of Penetrating Gunshot Wounds of the Cranium. Cerné.
24 The Turkish Red-Crescent (Turkish Red-Cross).

January 20, 1912.

25 Reorganization of the Invalids as a Home for Veterans.
26 Statistics of Antityphoid Vaccination (translation of article by Col. H. H. Firth in J. of the R. A. M. Corps, June, 1911).
27 *Sunstroke and Insolation. Surgeon-Major Ducurtil.
28 Leprosy in Madagascar. Jeanselme.

20. **Anti-typhoid Vaccination.**—Prof. Chantemesse, in two reports to the Academy of Medicine, describes his antityphoid vaccination work in Morocco and also refers to the results obtained in England and the United States. He concludes that the obvious benefits of this inoculation should also be extended to the civil population, and that France should do as much for the prophylaxis of typhoid fever as it does for that of smallpox. He urges a campaign of education with the view of vaccinating everybody under 35 years. He recommends a service of gratuitous vaccination in all the hospitals, having himself given the example and started the crusade in the Hotel Dieu. The editor of the *Caducée*, who is not yet converted to the doctrine of antityphoid vaccina-

Digitized by Google

tion, finds encouragement in the fact, noted by him, that Prof. Chantemesse's recommendations were not greeted with much applause.

27. **Sunstroke and Insolation.**— A sharp distinction is drawn between these two conditions, the former being the effect of oppressive heat on men already weakened or fatigued, the latter, a real traumatism caused by the direct rays of the sun. In the first no post-mortem organic lesions are visible, while, in the second, there is congestion of the meninges and viscera and, in severe cases, multiple visceral hemorrhages. Sunstroke is frequent in France while insolation is very rare.

V. HAVARD.

GERMANY.

Deutsche Militärärztliche Zeitschrift.

February 5, 1912.

29 The Present Status of Knowledge of the Dyscrasic-paralytic Form of Heat Stroke. A. Hiller.
30 A Case of Anarythmia. Drenkhahn.
31 A Simple and Cheap Lens Case. V. Haselberg.
32 A Plaster Hand for Use in Repair of Rubber Gloves. Keyl.
33 Radiological Examination of the Colon. Strauss.

February 20, 1912.

34 Medical Matters in the Turkish Army. Vollbrecht.
35 A Newly Discovered Memorial Inscription of a Roman Medical Officer. Haberling.
36 The Work of the Medical Inspection of Schools in Relation to the Military Establishment. Baur.
37 On the Transportation of the Wounded by the Use of two Bicycles. Sachs-Muke.
38 On the Treatment with Arsonvalization in Military Hospitals. Viktor Hufnagel.
39 *On an Epidemic of Gastro-intestinal Disease. Bofinger
40 Two Cases of Schloffer's Tumor. Pieper.

39. **Epidemic of Gastro-intestinal Disease.**— On Sept. 2nd and 3rd, 1911, 187 men, from six companies at Stuttgart, took sick

Digitized by Google

with headache, pains in the abdomen and diarrhoea; the temperature ran to 40 degrees C. The stools were yellowish, watery and contained mucous. Most of the cases were well after the fourth day. Fifty stools were examined and a common organism was found which had common cultural characteristics and agglutinated up to 1:300 with Gartner bacillus serum; the patients' serum also showed agglutination in some cases to 1:600. Agglutination with typhoid and para-typhoid serum was much less marked. The bacilli began to disappear from the stool about the 12th day. The explanation of the epidemic was fairly conclusive. Water could be ruled out as it was used by other companies which were not affected. On Sept. 1st the diet consisted of coffee, soup, dried fruit and beef with dumplings. On this day three of the cooks had diarrhoea and on later examination were found to have a Gartner infection. The meat was good before cooking; it was thoroughly cooked and cut up for serving; but the troops were four hours late for dinner. The author believes that the meat was infected by the cooks during preparation and that the delay allowed the infection to spread over the meat, thus producing the epidemic.

H. J. NICHOLS.

GREAT BRITAIN.

Journal of the Royal Army Medical Corps.

February, 1912.

41 A Critical Review of Kala Azar and Tropical Sore. Lieut. Col. Sir William B. Leishman, F. R. S., R. A. M. C.

42 The Anti-Bactericidal Action of the Bile Salts. Major S. Lyle Cummins, R. A. M. C.

43 *Insanity in the Army During Peace and War, and its Treatment. Lieut. Col. A. G. Kay, R. A. M. C. (R. P.).

44 *Functions of Hospital Ships. Fleet-Surgeon D. J. P. McNabb, R. N.

45 *Reviews.

43. **Insanity in the Army.**—The author says that until recently nervous and mental diseases in the Army have received very little recognition in England, but the apparent increase of these condi-

Digitized by Google

tions makes the subject deserving of special study. In France and Germany statistics show that there has been a continuous increase in mental diseases in the Army for the last ten years, the incidence at present being alarming. In England, also, statistics show an increase, though not quite to the same extent. Part of this increase is apparent and appears to be due to better methods of recognizing cases on the border line.

In the French Army among the infantry the disturbances most frequently observed are psychoses synchronizing with attacks of mental exhaustion. The sudden change from comparative comfort to an existence imbued with all the rigors of military discipline, not to mention the exactions incident to enforced mental and physical exertion, entails something more than the ordinary soldier possesses, namely, the sort of adaptability associated only with men who are habitually in possession of normal intellectuality. One can readily see that since the individuality of the ordinary soldier is none too strong, he will not be long in manifesting insanity, should there be a predisposition to cerebral disturbance —a deplorable condition that is brought on partly by the officers in charge of regiments who seem to see in his lack of ability to submit to stringent military rules only what is perverse in human nature that must be corrected by increased discipline. Thus stubbornness is held responsible for insubordination and disregard of military rules, for open rebellion, when mental disease should be regarded as the prime cause.

The Army Medical Report of the British Army for 1908 gives the following figures: Total number of recruits inspected, 61,278. Rejected for weakness of intellect: (1) On inspection 54, equal to 0.88 per 1,000 inspected; (2) Three months after enlistment, 71, equal to 1.16 per 1,000 inspected.

The forms of insanity most prevalent in the British Army are melancholia, mania, and the delusional types; very few cases of general paralysis of the insane occur, although there is always a large amount of syphilis and its sequelae. The short-service system would partially explain the comparative infrequency of this particular form, but the author also thinks the more effectual methods of treating syphilis would account for the absence of general paralysis of the insane perhaps better than any other reason.

Digitized by Google

British medical officers examining recruits are bound by regulations to test the mental capacity of every recruit before enlistment. This is done by directing attention particularly to mental alertness, and to signs of degeneracy, epilepsy, and all forms of nervous instability, or any other condition likely to produce mental weakness. In this way, so far as medical skill can prognosticate, the psychically weak are eliminated.

Insanity is invariably increased as the result of war. The prevailing types of the disease are the depressive and delusional forms.

Regarding the effect of a campaign on mental diseases, the experiences of the Russo-Japanese War have furnished valuable information. It is worthy of note that this was the first time in which mental diseases were separately cared for by specialists from the firing line back to the home country. The experiences on the Japanese side have not yet been published. The Russian experiences have, however, been fully reported.

Steida (Centralblatt für Nervenheil, und Psychologie, 1906), says that battle as a psychic trauma is not alone sufficient to cause a psychosis. The most immediate results of battles are hysterical excitement and confused states. These usually clear up within a few days, but irritability, fearfulness and emotional instability remain for weeks. He lays as much weight upon the prolonged exertion, the deprivations, the loss of sleep, hunger and thirst as upon the psychic trauma of battle. Among the Russian officers there was a higher percentage of alcoholic psychosis, and also neurasthenic and hysterical conditions. Wagner (Militärärztliche Zeitschrift, 1908), describes many cases of hysterical fright with great excitement and confusion, ending finally in a semi-conscious state with great mental and bodily weakness. The lack of complete examination of officers and men before going to the front greatly increased the number of mental cases. Prof. Autokratow personally saw officers in the early stages of paresis and with arterio-sclerosis going to the front, only to be returned in a few months with more active manifestations of their ailments.

44. **Functions of Hospital Ships.**—The author says that a hospital ship may be defined as a ship placed at the disposal of the Commander-in-Chief for the purpose of relieving his fleet of sick

Digitized by Google

and providing them with the best possible accommodation and opportunities for treatment in peace time; and in war time undertaking the care of all the wounded resulting from a naval action so avoiding the necessity for depleting the fleet by having to detach ships to a base to get rid of the wounded. To fulfil these requirements a hospital ship should have ample accommodation to deal with every class of disease or injury which is likely to be met with; she should be well found in all the essentials for comfort, and in every well-tried and up-to-date appliance for dealing with wounds and disease; she should be constructed or transformed with a view to giving fair play to the main canons of hospital construction, namely, light airy wards as little encumbered with accessories as possible, easy access to the wards, efficient and up-to-date arrangements for cooking and bringing food to patients, well arranged lavatories and latrines, and a well-trained nursing staff. Moreover, she must be entirely independent of the fleet in the matter of supply of food, coal, water, and in the matter of the crew required for her maintenance and locomotion. Hospital ships have been attached to fleets on many occasions prior to the present day, but in most cases these have been men-of-war or merchant vessels which have been transformed temporarily, and the qualities of a good hospital have in many instances been sacrificed to the peculiar character of the ship employed.

He then submits some considerations or suggestions on the following points:

(1) Functions of the hospital ship in peace time;
(2) Functions of the hospital ship in war time;
(3) Methods of transporting sick and wounded to hospital ships;
(4) Methods of embarking sick and wounded into boats from fighting ships.

..... Dr. Bonnette (*Bulletin du Service de Sante Militaire*, October, 1911), gives a sketch of the principal diseases from which Napoleon suffered at different periods of his career. At the siege of Toulon, Napoleon contracted itch from a gunner, he never quite recovered from the effects of this, as it left a recurring eczema. During the early period of his consulate he was greatly troubled by his gouty diathesis. About this

Digitized by Google

time he began to suffer from a persistent cough and difficulty in breathing. He became emaciated, pale and depressed, so much so that a fatal termination seemed probable. For a long time he refused to have any medical advice, but finally he consented to see Desgenettes, who apparently employed his best bedside manner, as Napoleon, after the interview, summed him up as a babbler and his art as an imposture. The advice given was not followed.

Napoleon's condition became steadily worse, and he was finally persuaded to allow Corvisart to examine him. Corvisart's diagnosis was an "itch driven inwards, loss of flesh and pulmonary disorders." Corvisart, more shrewd than Desgenettes, told Napoleon that his trouble was not serious, "merely a humor which had been driven inwards and which must be fetched out again." He accordingly applied blisters to Napoleon's chest; the treatment was followed by a rapid improvement, and Napoleon showed his gratitude by bestowing substantial benefits on the fortunate physician.

When a post-mortem examination was made at Longwood, the upper lobe of the left lung was found to contain numerous tuberculous nodules and a few old cavities; the lung was also adherent to the chest wall and pericardium.

During his numerous campaigns Napoleon enjoyed excellent health. Whenever he felt out of sorts he took a very hot bath to induce free perspiration.

When about 40 Napoleon became stout and his mind somewhat lethargic; he failed to grasp situations or make his resolutions as rapidly as formerly, and even fell asleep when studying maps. At this time he became increasingly subject to attacks of acute dysuria. After death the bladder was found to be contracted and to contain a quantity of gravel and some fine calculi.

Napoleon was a very rapid eater, rarely allowing more than fifteen minutes for any meal. In later life he suffered from severe digestive troubles.

In 1819 at St. Helena, Napoleon suffered from a painful congestion of the liver, for which a naval surgeon recommended a change of climate.

At the autopsy Antommarchi found a scirrhous cancer near the pylorus which was adherent to the left lobe of the liver.—C. E. P.

ALBERT G. LOVE.

Digitized by Google

Public Health.

February, 1912.

46 The Epidemic Grant and the Relationship of School Attendance to the Requirements of Health. Wm. Butler and S. M. O. Willesden.

47 Town and Country. H. Franklin Parsons.

48 *Note upon an Unusual Form of the Diphtheria Bacillus and some Remarks upon the Bacteriological Diagnosis of Diphtheria. John Dale.

49 Treatment of Scarlet Fever by Eucalyptus Oil. A. J. Laird.

50 The Sanitation of a Divisional Camp. F. E. Freemantle.

March, 1912.

51 The New Crusade Against Consumption. R. A. Lyster.

52 Municipal Tuberculin Treatment in Brighton. Duncan Forbes and H. P. Newsholme.

53 Suggestion with a View to Increased Efficiency and Economy in Public Health Work. Francis Vacher.

54 Epidemic Poliomyelitis in Westmoreland. W. E. Henderson.

48. **Note upon an Unusual Form of Diphtheria Bacillus.**—The author describes in detail an atypical diphtheria bacillus isolated from cases during an epidemic. It showed great irregularity in morphology, so much so that even an experienced bacteriologist would have difficulty in recognizing it; it grew very slowly upon Loeffler's blood-serum, but after long cultivation upon this medium its morphology changed to that of typhoid diphtheria bacilli. He also warns against calling a culture from the throat negative for diphtheria bacilli at the end of twenty-four hours, stating that not infrequently the bacilli cannot be detected in cultures until the end of thirty-six hours. He urges that long incubation of the cultures should be insisted upon and that no culture should be called negative until it has been examined over a period of thirty-six hours.

C. F. Craig.

Digitized by Google

Indian Medical Gazette.

January, 1912.

55 *Appointment to the Service Examination. Lieut. Colonel D. G. Crawford, I. M. S.
56 Abor Arrow Poison. Major F. N. Windsor, B. A., B. Sc., M. D., I. M. S.
57 Some Notes on the Teaching of Anatomy. Capt. Hodgkinson Lock, I. M. S.
58 Air in the Bladder Amongst Women. Major C. C. Barry, I. M. S.

55. **Appointment to the Service Examination.**—The author gives an interesting account of the history of the examination regulations of the Indian Medical Service, and of the character of these examinations, from the year 1622, in the time of the East India Company, to the year 1856. The article is to be continued.

ALBERT G. LOVE.

RUSSIA.

Wojenno Medizinskij Journal, St. Petersburg.

(There has been interruption in the mail, beginning with the August, 1911, issue of this monthly. A letter has been sent to the publishers requesting transmission of the missing copies. As soon as they arrive the abstracts will be resumed where left off.—Abstracter.)

Morskoj Wrach.

October, 1911.

59 Contagious Disease Hospitals in Japan. Gomzjakow.
60 Fisheries in Astrabad Bay. Ssolowkin.
61 Letters from the International Hygienic Exposition in Dresden. K. P. Herzog.
62 Resume of the Activity of the Society of Naval Surgeons in the City of Sevastopol for the year 1910-11. By its Secretary, L. Pawlowski.

Digitized by Google

63 *Reminiscences of the Voyage of the Military Transport "Kolujm" in 1910. L. V. Tamm.

64 The Naval Hospital in Sin-Maizur (Japan). P. S. Gomzjakow.

65 Letters from the International Hygienic Exposition in Dresden (Concluded). K. P. Herzog.

63. **Voyage Reminiscences.**— This article profusely illustrated with half-tones representing settlements of the "dark north" would strike any American as peculiar, for along side what appears even without perusal of the text as typical Greek-Orthodox churches can be seen the stars and stripes on high flagstaffs. As can be surmised these are villages in Alaska ceded the United States by Russia in 1867.

From a purely ethnographic point of view the abstracter confesses to have learned more from Tamm's interesting narrative than it is possible to acquire from standard works of reference. Tamm has met officers of the Revenue-Cutter Service and what must have been surgeons of the U. S. Public Health and Marine-Hospital Service. He calls them all "tamojennuj (custom house) and has carried away a fine impression of all Americans in Alaska.

The transport left Vladivostock June 10, 1910, and was sent in addition to certain stops to Unalask Island (Aleutian Island) to take aboard Mr. and Mrs. Yochelson (Americans?) the former is ethnographer of the Imperial Academy of Sciences and had spent two years in Alaska in research.

Some attention has been paid to the medical men the author met in remotest places and to the prevalent diseases. Compelled to live in primitive huts with but a small pharmacy and a few surgical appliances the lot of these frontier doctors is lightened only by the deep appreciation and gratitude of their patients.

Tamm seems astonished that while he and his men of the transport were given a banquet aboard an American Revenue cutter none of the officers and sailors drank or were drunk and all had an enjoyable time. The Russians gave three cheers for President Taft in response to a toast to the health of the Czar.

Digitized by Google

60 Naval Hospitals in Kure and Sassebo (Japan). Gomzjakow.
67 *Measures for the Prevention of Venereal Diseases in the Port of Sevastopol in 1910. Rodionow.
68 *Organization of Medical Aid to the Wounded During the Battle Near the City of Benderges (Persia). Ssorokin.
69 Bacteriology and Disinfection in the International Hygienic Exposition in Dresden (summer of 1911). Bjelonowsk.
70 Brief Resume, Surgeon General's Report on the Health of the Navy for 1908. J. S. Keffel.

67. **Prevention of Venereal Diseases.**—An excellent and detailed review of the entire problem of venereal prophylaxis, including an abstract of the literature on the subject (the very first publications on the subject as early as 1840 are cited), and statistical data for the entire fleet. While much in that article is of great interest to students of venereal prophylaxis no idea not already published by THE MILITARY SURGEON has been advanced. In spite of a careful perusal of the lengthy article no reference to American work can be found.

68. **Organization of Medical Aid to the Wounded During the Battle Near the City of Benderges (Persia).**—(This article is published in this issue under "Reprints and Translations).

G. M. BLECH.

Digitized by Google

REVIEWS

RECENT METHODS IN THE DIAGNOSIS AND TREATMENT OF SYPHILIS. (The Wassermann Reaction and Ehrlich's Salvarsan, "606".) By C. H. Browning, M. D., Lecturer on Bacteriology in the University of Glasgow, and Ivy McKenzie, M. D., Director, Western Asylums' Research Institute, Glasgow. Octavo, 303 pages. Cloth, $2.50 net. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

This is a comprehensive work on the subjects of which it treats. A very extensive literature has recently appeared on matters to which this book refers and full advantage has been taken of this with a view to omitting no facts of theoretical or practical importance. The book is, however, essentially a record of original work. Some of the observations have previously appeared in the various journals, but many now appear for the first time. The authors acknowledge their indebtedness for numerous grants from the Carnegie Trust. These have been contributed to pay part of the expenses of the research work. The references have been selected with a view to enabling those who are interested in particular subjects to obtain access to the original sources.

The last word has not yet been said on the value of Ehrlich's method for treatment of syphilis nor probably on the value of the Wassermann reaction. The authors must be highly commended, however, for their painstaking researches with a view to arriving at an independent judgment on the questions at issue. They are very conservative in their conclusion as to the value of salvarsan though they evidently regard it highly in the treatment of syphilis.

The book is well and clearly written and the publishers have done their part in an excellent manner.

THE PRACTICAL MEDICAL SERIES, Comprising Ten Volumes of the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Gustavus P. Head, M. D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School, and Charles L. Mix, A. M., M. D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume IV, Skin and Venereal Diseases, Miscellaneous Topics. Edited by W. L. Baum, M. D., Harold N. Moyer, M. D. Series of 1911. Octavo of 239 pages. Price,

Digitized by Google

$1.25. Price of ten volumes, $10.00. The Year Book Publishers, 180 N. Dearborn Street, Chicago.

A large part of the present volume of this well-known series is devoted to skin and venereal diseases for which well selected abstracts of the literature of the preceding year have been made. Under the heading miscellaneous the following subjects are treated: history of medicine, insurance, medico-legal questions; sociology and again miscellaneous.

INTERNATIONAL CLINICS. Volume I. Twenty-second series, 1912. A quarterly of illustrated clinical lectures and especially prepared original articles on treatment, medicine, surgery, neurology, pediatrics, obstetrics, gynaecology, orthopaedics, pathology, dermatology, opthalmology, otology, rhinology, laryngology, hygiene and other topics of interest to students and practitioners by leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A. M., M. D., Philadelphia, with the collaboration of Wm. Osler, M. D., John H. Musser, M. D., A. McPhedran, M. D., Frank Billings, M. D., Chas. H. Mayo, M. D., Thos. H. Rotch, M. D., John G. Clark, M. D., James J. Walsh, M. D., J. W. Ballantyne, M. D., John Harold, M. D., and Richard Kretz, M. D. Octavo of 304 pages. Price, $2.00. Philadelphia and London: J. B. Lippincott Company, 1912.

The articles most interesting to our readers which appear in this volume are: venereal disease in the United States Navy—its prevention and treatment, by Surgeon J. S. Taylor, U. S. N.; the present status of our knowledge concerning the etiology of pellagra, by John Funke, M. D., and simplifying the operation for inguinal hernia, by Aspinwall Judd, M. D.

Surgeon Taylor presents no plans for the prevention of venereal diseases which have not been discussed in these pages but his article is a very readable one and should serve to show the civilian profession how successfully the Navy is dealing with the venereal peril.

Dr. Funke concludes the evidence presented indicates that neither theory as to the etiology of pellagra satisfactorily explains all objections raised. But he believes that some factor must be operating in the southern United States which does not exist in the north as in the south pellagra is very wide-spread while in the north this is not the case to nearly the same extent. He invites attention to the fact that the amount of corn consumed in the south is much greater.

Digitized by Google

Operations for hernia in the services with the Bassini method have proved so generally successful that it is doubtful if medical officers will be inclined to try Dr. Judd's modification.

HONAN'S HANDBOOK TO MEDICAL EUROPE. A Ready Reference Book to the Universities, Hospitals, Clinics, Laboratories and General Medical Work of the Principal Cities of Europe. By James Henry Honan, M. D., Rush Medical College (University of Chicago), M. D.; Imperial Frederich Wilhelm University of Berlin, M. D.; Special Lecturer on Cardio-Vascular Disease in the University of Georgia; Honorary Member of The American Medical Association; Honorary President and Formerly Active President of the Anglo-American Medical Association in Berlin; Mitglied des Vereins Fuer Innere Medicin, Deutschland; Mitglied Der Balneologische Gesellschaft, Deutschland; Mitglied Des Aerzte Verein Zu Bad-Neuheim; Mitglied Des Mittle Rheinischer Aerzte Verein; Member of the Continental Anglo-American Medical Association, etc. Octavo of 261 pages. With Maps of Berlin, Edinburgh, London and Paris. Philadelphia: P. Blakiston's Son & Co., 1912. Price, $1.50 net.

This small book will be of the greatest value to any physician who contemplates a trip abroad for the purpose of studying his profession. The author who has practiced in Europe for a considerable number of years has succeeded in gathering together just the information that is needed by the American student. He has, therefore, performed a distinct service as in the past it has been all too difficult for the American physician to learn the exact opportunities presented at the various foreign medical centers.

FOURTH REPORT OF THE WELLCOME TROPICAL RESEARCH LABORATORIES AT THE GORDON MEMORIAL COLLEGE, KHARTOUM. Volume A.—Medical. Andrew Balfour, M. D., B. Sc., F. R. C. P. Edin., D. P. H. Camb., Director. Fellow of the Royal Institute of Public Health, the Society of Tropical Medicine and Hygiene, and the Incorporated Society of Medical Officers of Health; Member of the Association of Economic Biologists; Corresponding Member Societe de Pathologie Exotique, and American Society of Tropical Medicine; Medical Officer of Health, Khartoum, etc. Octavo of 404 pages, illustrated. Price, $5.00 net. Published for Department of Education, Sudan Government, Khartoum, by Balliére, Tindall & Cox, 8 Henrietta Street, Covent Garden, London, 1911. Depot for U. S. A.: The Toga Publishing Co., New York City. Depot for Canada: The Toga Publishing Co., Montreal.

The magnificent reports of the Wellcome Tropical Research Laboratories at Gordon Memorial College, Khartoum, always

Digitized by Google

possess special interest for our medical officers as they treat at first hand of so many subjects with which we also have to deal. The fourth report of these laboratories of which the staff is composed of a distinguished group of scientific men under the leadership of Dr. Andrew Balfour contains observations and discoveries brought to light during the last few years. The expansion of the work of the laboratories has made it necessary to publish the fourth report in two parts. The first part, volume A, the volume under review, deals with the medical aspects of the research work. Volume B, which relates to general science, is now in press and will be published shortly. Volume A presents the results of bacteriological examinations carried on in the laboratories. Pathological and other specimens have been the subject of investigation. Papers are contributed on the work of the sleeping sickness and kala-azar commissions. The difficulties encountered in blood examinations in the tropics are described. An extended research on fowl spirochetosis is recorded. Other articles include work on trypanosomes, human spirochetosis, kala-azar, cutaneous leishmamasis, veldt sore, diphtheria, etc. Notes on sanitation in the Sudan are continued.

As is always the case with the Wellcome Laboratory publications, the press work leaves nothing to be desired and the illustrations are of a high order of excellence.

SECOND REVIEW OF SOME OF THE RECENT ADVANCES IN TROPICAL MEDICINE, HYGIENE AND TROPICAL VETERINARY SCIENCE. Being a supplement to the Fourth Report of the Wellcome Tropical Research Laboratories. By Andrew Balfour, M. D., B. Sc., F. R. C. P. Edin., D. P. H. Camb., and Captain R. G. Archibald, M. B., R. A. M. C., Attached E. A. in Collaboration with Captain W. B. Fry, M. R. C. S., L. R. C. P., R. A. M. C., Attached E. A., and Captain W. R. O'Farrell, L. R. C. P. & S. I., R. A. M. C. Octavo of 448 pages. Price, $3.75 net.

This review is issued as a supplement to the fourth report of the Wellcome Laboratories. As its title implies it is a comprehensive record, derived from many sources, of the present state of knowledge of tropical medicine. The reviewers have taken much pains to examine current literature on their subject with the result that most recent studies on tropical medicine are incorporated in their book. This being the case all medical officers of the regular services should have easy access to the book for their tropical work.

Digitized by Google

EDITORIAL

MOST of the preliminary work in connection with the exhibition to be held coincidently with the Ninth International Red Cross Conference in Washington, D. C., from May 7th to 17th, 1912, has already been done. Present prospects are that over two hundred competitors will enter inventions for the Empress Marie Feodorovna prizes and that the Red Cross societies of many countries will participate with exhibits of their work. While room is still available for more exhibits this is regarded as a satisfactory showing and one that should make this exhibition of considerable interest to all medical officers.

The subjects of the Empress Marie Feodorovna prize competition vary considerably in importance, it is true, but there is now every reason to believe that all will be represented by creditable exhibits. By no means all of the competitors come from this country, so we should be able to see how much progress has been made abroad in inventions which are of interest to our medical service.

One of the most important exhibits from our own country will be an ambulance company and a field hospital. Little has yet been done here to organize Red Cross field corps but it now looks as though one such corps could be assembled in Washington at the time of the conference. Trained personnel is without any question where we would be found most lacking in the event of war. Material may be improvised to a considerable extent, but time and a good deal of time is required to develop a competent personnel and any method which has as its object the training of personnel is consequently of the highest importance. Figures show that for an army of 450,000 men we will require 45,000 for the medical service; 4,500 of these should be medical officers. Of the 40,500 remaining possibly 5,500 might be women nurses and civilian employees. This would leave a hospital corps of 35,000 to be provided in some way.

Both our Army and Navy will have interesting exhibits in the exhibition building and the latter will illustrate a method of removing wounded men from a ship.

Digitized by Google

The Red Cross nursing service will also participate in the exhibition. The showing made within the past two years in enrolling Red Cross nurses has been noteworthy and the successful efforts of women nurses throughout the country in this direction should certainly be brought to public attention.

The program of the conference is also well advanced though it is expected considerable additions will be made before it assembles. The Surgeons General of both our Army and Navy will deliver addresses and from the distinguished list of delegates it is certain there will be careful presentation of many subjects of interest to the Red Cross and free discussion thereof. Among the foreign delegates will be several medical officers of international reputation and the opportunity afforded to meet them and to discuss informally subjects of common interest is one that our medical officers who are so situated that they can be in Washington at the time of the conference cannot afford to neglect.

Digitized by Google

NEWS OF THE SERVICES

The Association of Medical Officers of the Militia of Canada, through its Secretary, Captain T. H. Leggett, under date of Feb. 8, 1912, invited the Association of Military Surgeons of the United States to send a delegate to the annual meeting. Unfortunately, circumstances did not permit acceptance of this courteous invitation.

Major Wilson T. Davidson, Medical Corps, has reported for duty at his new station, Fort Bliss, Texas.

According to cable advices, Captain S. M. DeLoffre, Medical Corps, and First Lieutenant Alexander T. Cooper, Medical Corps, accompanied the last detachment of the Fifteenth Infantry from Manila to China.

After a long extended tour of temporary duty at southern stations, First Lieutenant F. N. Chilton, Medical Corps, has reported for duty at his proper station, Fort Myer, Va.

First Lieutenant H. B. Etter returned to his station, Fort Snelling, for duty on February 6th. Lieut. Etter went to the border early last spring and has been on constant duty in Texas and New Mexico since that date.

The friends of Major Clyde S. Ford, Medical Corps, will be glad to learn that he is rapidly recovering. He is now under observation and treatment at the Army and Navy General Hospital, Hot Springs, Ark.

First Lieut. G. P. Stallman, Medical Corps, sailed from San Francisco on March 5th for the Philippines on the transport Thomas.

The resignation of First Lieutenant T. J. Leary, Medical Corps, was accepted by the President, to take effect on March 15. Lieut. Leary was commissioned in the Medical Corps on May 31, 1909, and served in the Philippines from October 8, 1909, to October 10, 1911. He reported for duty at Fort Slocum, N. Y., on February 11, 1912.

The order sending Major Paul F. Straub, Medical Corps, to the Philippines on March 5th has been so amended as to relieve him from duty in Washington on July 1st.

Major Albert E. Truby, Medical Corps, has reported for duty at his new station, Fort Jay, New York.

The officers of the Medical Department who arrived in San Francisco on March 14 from the Philippines, on the transport Logan, have been assigned to duty as follows:

First Lieut. William R. Dear, Medical Corps, to Fort Slocum, N. Y.

First Lieut. Clarence A. Treuholtz, Medical Corps, to Presidio of Monterey, Cal.

First Lieut. Frederick S. Wright, Medical Corps, to Fort Sam Houston, Texas.

First Lieut. Lee R. Dunbar, Medical Corps, to Fort Douglas, Utah.

Digitized by Google

First Lieut. Addison D. Davis, Medical Corps, to Fort Riley, Kansas.

First Lieut. Elsworth Wilson, Medical Reserve Corps, to Fort Huachuca, Arizona.

First Lieut. Henry F. Philips, Medical Reserve Corps, to Fort Bliss Texas.

First Lieut. Robert Lemmon, Medical Reserve Corps, to Fort Hancock, N. J.

First Lieut. Oswald F. Henning, Medical Reserve Corps, to Fort Stevens, Oregon.

First Lieut. William M. Archer, Jr., Medical Reserve Corps, to Fort Riley, Kansas.

The resignation of First Lieutenant F. M. Wells, Medical Reserve Corps, has been accepted by the President to take effect upon the expiration of his present leave of absence.

Captain Mahlon Ashford, Medical Corps, has reported for duty at Fort D. A. Russell, to command Ambulance Company No. 1.

Major Kent Nelson, Medical Corps, accompanied the battalion of the Eighteenth Infantry from Whipple Barracks, Arizona, to Fort Bliss, Texas.

Major C. C. McCulloch, Jr., Medical Corps, has reported for duty at Fort D. A. Russell. Major McCulloch arrived in San Francisco on February 12, 1912, from the Philippine Islands on the transport Thomas.

Captain Howard H. Johnson, Medical Corps, has reported for duty at the Walter Reed General Hospital.

Major C. C. Collins, Medical Corps, has returned to his station, Fort Robinson, Nebraska, from leave of absence.

The friends of Major C. J. Manly, Medical Corps, will be glad to learn that he has been relieved from further observation and treatment at the Walter Reed General Hospital, and is now on leave of absence at his home, Greenville, South Carolina.

Orders have been issued for the examination of the following medical officers on May 1st, to determine their fitness for promotion to the grade of major:

Captain Edwin W. Rich, Medical Corps, at the Letterman General Hospital, Presidio of San Francisco, Cal.

Captain Perry L. Boyer, Medical Corps, and Captain James M. Phalen, Medical Corps, at Washington, D. C.

Captain George P. Peed, Medical Corps, and Captain William R. Davis, Medical Corps, have reported at West Point, N. Y., for temporary duty as instructors in Military Hygiene.

First Lieutenant Henry Beeuwkes, Medical Corps, has reported for temporary duty in Washington, to assume the duties of Instructor in X-ray work at the Army Medical School.

Major Robert Grubbs, Medical Corps, who has been a patient in the Presbyterian Hospital in Chicago, is now on leave of absence. Part of this leave was spent at the Mayo Clinics in Rochester Minn.

Digitized by Google

The contract of First Lieutenant John D. Millikin, Dental Corps, was annulled on March 4, 1912. Dr. Millikin was first appointed in the Dental Corps on March 2, 1902.

Major William H. Brooks, Medical Corps, has reported for duty at the Presidio of San Francisco, Cal.

Colonel L. W. Crampton, Medical Corps, who was relieved from duty in the Philippine Islands on September 15, 1911, has arrived in the United States via Europe. He has been ordered to proceed to his home to await retirement.

The resignation of First Lieutenant Charles E. Treibly, Medical Reserve Corps, was accepted by the President to take effect February 27th.

First Lieutenant William H. Allen, Medical Corps, has reported for duty at Fort Sam Houston, Texas.

Captain Ferdinand Schmitter, Medical Corps, has reported for duty at Fort Greble, R. I.

Major F. P. Reynolds, Medical Corps, has spent the greater part of the last month on inspection duty with the Ohio National Guard.

Orders have been issued for the examination of the following medical officers on April 15th, to determine their fitness for promotion to the grade of Captain:

AT THE LETTERMAN GENERAL HOSPITAL.

First Lieut. Arnold D. Tuttle, Medical Corps.
First Lieut. Clarence A. Treuholtz, Medical Corps.
First Lieut. George H. McLellan, Medical Corps.
First Lieut. Alexander D. Parce, Medical Corps.
First Lieut. Robert W. Kerr, Medical Corps.
First Lieut. Lee R. Dunbar, Medical Corps.
First Lieut. Rozier C. Bayly, Medical Corps.

AT WASHINGTON, D. C.

First Lieut. Frederick S. Wright, Medical Corps.
First Lieut. Daniel W. Harmon, Medical Corps.
First Lieut. Eben C. Hill, Medical Corps.
First Lieut. James A. Wilson, Medical Corps.
First Lieut. Armin Mueller, Medical Corps.
First Lieut. William S. Shields, Medical Corps.
First Lieut. Addison D. Davis, Medical Corps.
First Lieut. William H. Smith, Medical Corps.
First Lieut. Clarence E. Fronk, Medical Corps.
First Lieut. William R. Dear, Medical Corps.

Captain William A. Duncan, Medical Corps, visited Fort Oglethorpe, Georgia, during the month to install in the hospital at that post a new type of X-ray machne.

Captain Charles F. Morse, Medical Corps, on duty at the Letterman

Digitized by Google

General Hospital, Presidio of San Francisco, Cal., was in Washington during the early part of March.

Captain H. A. Phillips, Medical Corps, has returned to his station, Fort Adams, Mass., from leave of absence.

Surgeon Paul M. Carrington, of the Public Health and Marine-Hospital Service, has been relieved from duty at Port Townsend, Washington, and is now in charge of the Marine Hospital at St. Louis, Missouri.

Surgeon E. K. Sprague, of the Public Health and Marine-Hospital Service, who has been in charge of the Marine Hospital at Key West, Florida, has been transferred to New York City, where he will be on duty at Ellis Island in connection with the medical inspection of immigrants.

Passed Assistant Surgeon W. C. Billings, of the Public Health and Marine-Hospital Service, has been ordered to San Francisco, California, for duty in connection with the medical inspection of arriving aliens.

Passed Assistant Surgeon F. E. Trotter, of the Public Health and Marine-Hospital Service, has been relieved from duty at the San Francisco quarantine, and is now at Honolulu, where he succeeds to the office of Chief Quarantine Officer of Hawaii, relieving Passed Assistant Surgeon Carl Ramus, who has been placed in charge of the Marine Hospital at Port Townsend, Washington. Passed Assistant Surgeon M. W. Glover has succeeded Dr. Trotter in charge of the quarantine station at Angel Island.

The plague eradicative campaign in California, which is at present under the charge of Passed Assistant Surgeon Donald H. Currie, of the United States Public Health and Marine-Hospital Service, is being carried forward with vigor. Eradicative work is being performed in all the infected counties, and special attention is being given to the counties of Contra Costa, Alameda, Santa Clara and San Benito, not only on account of the heavier infection therein, but also because of their menace to the Bay cities. The county officials are co-operating with the Public Health and Marine-Hospital Service in the enforcement of the law requiring the extermination of rodents on the landholders' properties. The work of exterminating squirrels in the plague focus at the east of the San Joaquin River has been completed. The securing of specimens of the ground squirrel population for examination in the laboratory to determine whether they are infected with plague will be again taken up. In this way, it will be possible to determine whether or not any new foci of plague have been established, and whether the disease remains in the old foci. This intensive campaign has caused the destruction of large numbers of ground squirrels by poisoned grain or bisulphide of carbon. The mere killing of these squirrels, regardless of the fact that some of them are infected with bubonic plague, will exert a deterrent effect upon the spread of the disease, by reason of the extreme dilution of the infectible material produced thereby. In the city of San Francisco, the examination of captured rodents (rats and mice) is still being continued, and a force

Digitized by Google

of men is employed in trapping rats and the enforcement of the city ordinances relative to rat proofing and the prevention of nuisances which would tend to increase the rodent population. In the cities of Oakland and Berkeley, the examination of rodents is also being continued, as well as in the cities of Stockton, Fresno and San Jose. In none of these cities has plague been found for some time past. Research work on the plague-like disease of rodents and the rat leprosy bacillus is being continued at the Plague Laboratory at San Francisco.

Passed Assistant Surgeon E. A. Sweet, of the Public Health and Marine-Hospital Service, formerly on duty at the Marine Hospital at Stapleton, New York, has assumed charge of the Gulf Quarantine Station on Ship Island, relieving Passed Assistant Surgeon J. T. Burkhalter, who has been placed in charge of the Marine Hospital at Key West, Florida.

Passed Assistant Surgeons H. S. Matthewson and T. Clark of the Public Health and Marine Hospital Service have been commissioned Surgeons, to rank as such from February 2.

Passed Assistant Surgeon Joseph Goldberger, of the Public Health and Marine-Hospital Service, recently read a paper before the New York Academy of Medicine, describing his work in Mexico in connection with typhus fever, and the investigations which he conducted jointly with Passed Assistant Surgeon John F. Anderson, showing that the so-called Brill's disease, which has for several years been noted in New York City, is identical with the typhus fever of Mexico.

Passed Assistant Surgeon M. W. Glover, of the Public Health and Marine-Hospital Service, read an interesting paper before the Medical Society of the City and County of San Francisco, March 5, 1912, giving the results of investigations which he had carried on regarding the occurrence of entoparasites in arriving aliens. Among the Oriental immigrants were found a considerable number infected with hookworms, whipworms, and round worms. In many individuals there was an infection with two of these parasites, and in some all three were found in the same immigrant.

Passed Assistant Surgeon T. B. McClintic has resumed his investigations of Rocky Mountain Spotted Fever in the Bitter Root Valley. Last season, under Dr. McClintic's direction, the domestic animals within an infected area of about eight square miles, were dipped in an arsenical fluid to destroy ticks which disseminate the disease, and a large number of small wild animals were shot and trapped. Like measures are to be continued this year and studies made of the susceptibility of lower animals to spotted fever infection.

Assistant Surgeon J. P. Leake has been relieved from duty on the U. S. Revenue Cutter "Algonquin," which is cruising in Porto Rican waters, and assigned to duty in the Hygienic Laboratory.

Passed Assistant Surgeon T. W. Salmon has been granted leave of absence to December 31, 1913, at the request of the National Committee for Mental Hygiene, to enable him to make a survey of the conditions of the insane in the United States.

Digitized by Google

SPECIAL ORDERS, No. 40.

WAR DEPARTMENT, WASHINGTON, *February* 16, 1912.

* * * * * * *

20. Under the provisions of an act of Congress approved January 21, 1903, amended by an act approved May 27, 1908, the following-named medical officers of the Organized Militia are authorized by the President to attend and pursue a six weeks' course of instruction at the Army Field Service School for Medical Officers, Fort Leavenworth, Kans., and to report to the commandant of that school not later than April 1, 1912:

Lieut. Col. Charles B. Cooper, National Guard of Hawaii (Honolulu, Hawaii Territory).

Lieut. Col. Joseph A. Hall, Ohio National Guard (Cincinnati, Ohio).

Maj. Bial F. Bradbury, National Guard of Maine (Norway, Me.).

Maj. Frederick Schavoir, Connecticut National Guard (Stamford, Conn.).

Maj. William S. Terriberry, National Guard of New York (New York City).

Maj. James H. McCall, National Guard of Tennessee (Huntingdon, Tenn.).

Capt. Earle S. Green, Indiana National Guard (Muncie, Ind.).

Travel from the respective homes of the officers named to Fort Leavenworth and return, under the authorization herein contained, is necessary in the military service.

(1880891, A. G. O.)

By order of the Secretary of War:

(Signed) LEONARD WOOD, *Major General, Chief of Staff.*

Official:

HENRY P. MCCAIN, *Adjutant General.*

BULLETIN OF MILITIA NOTES—ISSUED BY THE DIVISION OF MILITIA AFFAIRS, WAR DEPARTMENT, FOR THE YEAR 1912.

February 1, 1912.

8. No issue of this Bulletin was sent out on Jannary 16, 1912, on account of lack of material, due to the holidays. Whenever a regular issue date is passed, notification of that fact will be made in the next bulletin.

9. The policy of the War Department is *not* to encourage the formation of new separate organizations, to be armed, equipped, and uniformed from Federal funds, unless the units already in existence are complete as to organization, armament and equipment. For example, when a State maintains regiments or other units which are incomplete in respect to the number of companies, troops, batteries, etc., these organizations should be completed before other regiments, battalions or separate companies are created. It should be borne in mind, in that connection, that conformity to the organizations of the Regular Army, as prescribed by Section 3 of

Digitized by Google

the Militia Law, consists in part of maintaining the correct ratio between field and staff officers of a regiment and battalions, and of company officers. It is manifestly not the intent of the Militia Law to permit the organization and maintenance of a regiment which consists of only eight companies, divided into three battalions, etc., but to require a complete unit.

There is a recognizable efficiency ratio between the amount of Federal and State funds available for Militia purposes, and the number and strength of militia organizations maintained. It follows that efficient organizations cost a certain amount per capita, and that where a State or Territory attempts to maintain an undue number of men and organizations, the standard of the organization suffers.

The number of infantry regiments throughout the Organized Militia has steadily increased, but there has not been a corresponding growth in the number of auxiliary troops necessary to render such infantry effective. It is therefore against the policy of the War Department to encourage in any way the organization of additional infantry not needed to complete existing units until all deficiencies in auxiliary troops have been supplied.

In respect to the use of the unallotted funds, the policy has been adopted of using these funds to make up the deficiency in the field artillery and cavalry, and no allotment from such funds will be made to any State for the purpose of arming, uniforming, or equipping additional infantry organizations.

10. In regimental organizations, while it is not specifically required by law that an appropriate sanitary personnel should be available for service therewith, yet it is deemed of vital importance to the health and tactical efficiency of the command that such provision should be made. It is desirable that States and Territories having regiments of three battalions at peace strength have available for service therewith, four officers of the Medical Corps, four non-commissioned officers, and at least twelve privates, first-class, or privates, of the Hospital Corps. Organizations smaller than three battalions should have a sanitary personnel attached in proportion to its size in comparison with a regiment of three battalions. In States and Territories having sanitary units (ambulance companies and field hospitals), it is advisable that the quota of sanitary troops to be attached to combatant units should be available without reducing the prescribed minimum personnel of the ambulance companies and field hospitals.

* * * * * * *

14. The States of Maine and Wyoming have instituted the bulletin system.

15. (a) Regulations for the Uniform of the United States Army have been published, and are now available for distribution to the Organized Militia. They will be furnished without requisition, in a manner similar to the distribution of War Department orders. Extra copies may be ob-

Digitized by Google

tained, upon application. Each officer of the Organized Militia should receive one copy.

* * * * * * *

18. Paragraph 51, Bulletin of Militia Notes, page 15, February 8, 1911, is erroneous as written, and is revoked.

19. General Orders, No. 197, War Department, December 28, 1911, adds the following to Army Regulations, pertaining to the Medical Department. Paragraph 1458½ reads as follows:

"With the exception of the field hospital stationed at the Walter Reed General Hospital, Takoma Park, District of Columbia, field hospitals and ambulance companies will be considered organizations of the mobile army, and except as to medical supplies, will be supplied, instructed, and disciplined, and the affairs thereof administered, as is provided by the Army Regulations for other organizations of the mobile army."

(Sgn.) R. K. EVANS,
Brigadier General,
Chief, Division of Militia Affairs,
For the Chief of Staff.

GENERAL ORDERS,
No. 22.

STATE OF MISSOURI,
Adjutant General's Office,
JEFFERSON CITY, *December* 15, 1911.

1. The reorganization of the Medical Department, N. G. M., as outlined in General Order No. 9, A. G. O., Mo., 1911, will take effect January 1, 1912.

2. In addition to the Field Hospital, stationed in St. Joseph, the following units for instructional purposes will be organized and stationed as follows:

Ambulance Company "A," St. Louis.

Ambulance Company "B," Kansas City.

3. All officers hereafter commissioned in the Medical Corps, N. G. M., will be assigned to Instructional Units by the Commanding General, N. G. M., upon recommendation of the Chief Surgeon, N. G. M.

4. The senior officer attached to each of the Instructional Units shall be the commanding officer of the unit and shall be the accountable officer for all property issued to the unit and shall be responsible for the rendering of all reports and returns and the keeping of the necessary records. He will assign officers for duty in examining recruits in the National Guard organizations located in the same place. All reports and returns of the Medical Department, N. G. M., will be made through the Chief Surgeon, N. G. M.

5. For field duty officers of the Medical Corps and the Medical Reserve Corps, N. G. M., will be assigned to duty, (1) with regiments and other units and (2) with independent sanitary units, as the field hospital and the ambulance companies, by the Commanding General, N. G. M., upon the recommendation of the Chief Surgeon, N. G. M.

Digitized by Google

6. The Chief Surgeon, N. G. M., will appoint a war recruiting officer for sanitary troops, one each to be located in St. Louis, Kansas City and St. Joseph, in accordance with paragraph 3, G. O. No. 17, A. G. O., Mo., 1911.

7. Enlisted men of the Hospital Detachments now existing, will be (1) transferred to the Hospital Corps, N. G. M., and assigned to duty with one of the Instructional Units, if residing in the same city with an Instructional Unit, or (2) transferred to the nearest line organization, or (3) discharged the service of the National Guard.

8. Enlisted men transferred to the Hospital Corps, N. G. M., from the Hospital Detachments will be assigned to duty with one of the Instructional Units, by order of the Commanding General, N. G. M. The Commanding Officer of the present Hospital Detachments will forward to the Chief Surgeon, N. G. M., copies of the enlistment contracts, physical examinations and descriptive lists, military records and statements of accounts of all men transferred to the Hospital Corps; the Chief Surgeon will in turn transmit them to the commanding officer of the Instructional Unit to which the men have been assigned. All property, other than the personal clothing equipment, issued to enlisted men transferred, will be drawn in by the present accountable officer, and when all such property is drawn in, all property, except personal clothing equipment, will be invoiced and shipped to Major Oliver C. Gebhart, Medical Supply Officer, N. G. M., St. Joseph, Mo. For method of preparing papers, see paragraph 2, Instructions to Officers, Form 16, A. G. O., Mo., Combined Receipt and Invoice. The personal clothing equipment of the men transferred will be invoiced to the commanding officer of the Instructional Unit to which the men are transferred, quoting this paragraph and order as authority therefor. See paragraph 2, Form No. 16, A. G. O., Mo.

9. Enlisted men transferred to the nearest line organization will be transferred upon authority of this order. The enlistment contracts, physical examinations, and descriptive lists, military records and statements of accounts of men, transferred in accordance with this paragraph, will be forwarded direct to the commanding officer of the organization to which transferred; written notification, addressed to The Adjutant General of Missouri, Jefferson City, and sent through channels, of all men so transferred, will be furnished upon the date of transfer, in order that the records may be kept correctly in the office of The Adjutant General. All property, except personal clothing equipment, will be drawn in before transfer is made, and the property so drawn in will be shipped to the Medical Supply Officer, as provided for in the preceding paragraph. The personal clothing equipment of the men transferred will be invoiced to the commanding officer of the organization to which men are transferred. See paragraph 2, Form 16, A. G. O., Mo.

10. Commanding officers of the present Hospital Detachments will be required to render the required reports and returns, until a final settlement of property accountability is made, and until all the personnel are

Digitized by Google

either transferred or discharged, to render muster rolls and monthly returns.

11. Where officers of the Medical Reserve Corps, N. G. M., are located in the same cities with organizations of the National Guard, they will perform the services of physical examination of recruits without charge for such services.

12. All property, other than the personal clothing equipment of the men, now in the hands of accountable officers of the Medical Corps, N. G. M. will be shipped direct to Major Oliver C. Gebhart, Medical Corps, N. G. M., Medical Supply Officer, St. Joseph, Mo. This order contemplates orderly and hospital pouches, all chests, tent and bedding units, instruments, litters, etc., now in the possession of detachments. The Medical Supply Officer will check all chests, cases, etc., and make requisition for all missing articles that are required to complete them, in accordance with the provisions of the Medical Manual, 1911; after the completion of which, a complete equipment will be furnished the Instructional Unit commanders and any other officers of the Medical Corps, as the Chief Surgeon deems necessary to equip. All property shipped in accordance with this paragraph will be invoiced to The Adjutant General of Missouri, Jefferson City, with notation that the articles have been shipped to the Medical Supply Officer, the face of the invoice containing the following certificate:

"I certify that the contents of the above-named chests, cases, etc., as are in my possession and of which I have any knowledge as now existing, are included in this shipment."

This will relieve accountable officers of shortages now existing, except such shortages as may be accounted for by affidavits, which will assist the survey officer in his duties. Affidavits covering shortages should be furnished wherever possible. Upon the completion of the re-equipment of the chests, cases, etc., they will be returned to such officers and in such quantities as the Chief Surgeon may direct. They will then be invoiced complete and may be kept in a complete state by making requisition for expended parts as used.

By order of the Governor:

(Sgn.) FRANK M. RUMBOLD,
The Adjutant General.

Assembly No. 355.
STATE OF NEW JERSEY.
Introduced February 14, 1912, by Mr. Branegan.
Referred to Committee on Public Health.

An Act concerning honorably discharged surgeons.

BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey*:

1. Any surgeon honorably discharged from the medical department of the United States Army or Navy, Regular or Volunteers, is herewith au-

Digitized by Google

thorized to practice medicine and surgery in the State of New Jersey, by filing a sworn copy of his discharge with the State Board of Medical Examiners, and paying said board a fee of fifty dollars ($50).

2. This act shall take effect immediately.

His Majesty the King-Emperor has been pleased to bestow his Coronation Durbar Medal on Major R. J. Blackham, R. A. M. C., in recognition of special services at the Coronation Durbar at Delhi. Major Blackham was Commandant of a Coronation Durbar Contingent of the St. John Ambulance Brigade, consisting of nearly one hundred of all ranks which served the Delhi throughout the Durbar period, *i. e.*, nearly a fortnight.

The Contingent was well equipped in every respect andl had the following transport establishment, viz., 3 transport carts, 15 ambulance carts, 36 transport ponies and 30 riding ponies, specially provided for the occasion by His Highness the Maharaja of Jaipur.

The St. John men were officially recognized by the Durbar authorities and were attached to the Civil Ambulances under the command of Colonel Bamber, C. V. O., I. M. S. They rendered valuable services to many hundred cases and were fortunate enough to be on the scene at the only two serious accidents which occurred in the immediate vicinity of Their Majesties.

This is the first occasion on which voluntary ambulance workers have been officially employed in India.

Dr. Enno Sander, President and Treasurer of the Enno Sander Mineral Water Company, died at 11.40 o'clock Monday morning at St. Luke's Hospital after an illness of several months, of complications due to old age. He would have been 90 years old February 27.

Dr. Sander, who lived at the Washington Hotel, until his last illness several months ago compelled him to go to the hospital, was the author of the law creating the State Board of Pharmacy, moving spirit in the reorganization of the St. Louis College of Pharmacy, treasurer of the St. Louis Academy of Sciences for almost half a century and prominent in other organizations.

He was a native of Trium, near Koethen, in Auhalt, Germany, and was educated in private schools, later attending gymnasia at Zerbst and finally going to the Universities of Berlin and Halle, graduating from the later as Ph. D. in 1847. He was elected a member of the constitutional convention of his native State, and was afterwards elected to the regular assembly.

He did not serve in that office, because of complicity in the revolutionary attempt of the German Liberals at Baden. He was chosen Assistant Minister of War of the Provisional Government. When the attempt failed he eluded the King's officers and fled to Switzerland, remaining there until 1851. He was pardoned in 1850.

He settled in St. Louis in 1852, teaching German in the Independent High School. He entered business in 1853, starting a drug store at Second

Digitized by Google

and Walnut Streets. Later he established a second store in the Southern Hotel. He sold his stores in 1865, devoting himself to the manufacture of mineral water. His firm was incorporated in 1894 under the present name.

Dr. Sander for years was professor of materia medica and botany in the St. Louis College of Pharmacy, and February 26, 1902, was made emeritus professor of those branches. He was an honorary member of the Maryland College of Pharmacy and was awarded the Order of Civil Merit by Bulgaria. He was a member of the Liederkranz and German Turner Society, and at various times had been a member of the St. Louis, Missouri Athletic, Noonday, University and Union clubs.

Dr. Sander was a bachelor and has no relatives except a sister in Germany.

Dr. Enno Sander always manifested much interest in the Association of Military Surgeons and for many years furnished the prize medal which was contested for by members annually.

The many friends of Lieut. Colonel Leonard B. Almy, C. N. G., Retired, will sympathize with him in the death of his wife, which occurred on March 7, 1912.

Articles by members appearing elsewhere have been noted during the month as follows: The Disposal of Refuse in the Tropics, by Major R. J. Blackham, R. A. M. C., D. P. H. Lond., of the Middle Temple Barrister-at-Law, Knight of Grace of the Order of St. John, Kaier-i-Hind Medalist, Divisional Sanitary Officer, First Division, Indian Army (Member); and Epidemic Cerebrospinal Meningitis, by Passed Assistant Surgeon W. H. Frost, United States Public Health and Marine-Hospital Service.

Colonel Norton Royce Hotchkiss, N. G., Conn., an active member of the Association, died at his home in New Haven, January 29, from leukemia, aged 41.

He was born in Fort Mill, S. C., August 23, 1874, the son of Seth Hotchkiss and Rebecca Blount Steele.

He received his early education in Fort Mill and then attended the Medical College of the State of South Carolina, Charleston, from 1889 to 1891, and in the latter year entered the University of Maryland, from which he was graduated in 1891.

Digitized by Google

He immediately located in New Haven, and by his skill, knowledge and professional judgment soon won professional prominence. He was one of the best known surgeons in the state, attending surgeon at St. Raphael's Hospital, and a director of Elm City Hospital.

His military service began in 1896, when he became surgeon of the Second Company, Governor's Foot Guard of Connecticut, and served in this capacity for fifteen years. In 1907, he was appointed by Governor Woodruff surgeon general of Connecticut, with the rank of colonel.

His society membership included the American Medical Association, the New Haven Medical Society, of which he was once president; the New Haven County Medical Society, of which he was also once president; the Sons of the American Revolution, and the Kappa Sigma Fraternity. He was also a member of the Connecticut State Medical Society, and was medical director of the New Haven Mutual Indemnity and Protective Association.

The New Haven County Medical Society, at a special meeting held February 3, adopted resolutions expressive of their appreciation for Dr. Hotchkiss and stating that "As a man he was markedly human, sympathetic, strong and fearless; his hand was always extended toward anybody who was in need, his restless energy compelled success, his high character lifted him above the petty temptation of life and the genial quality of his disposition won for him friendships that were steadfast to the end. As a physician he was enthusiastic for his profession and loyal to his friends: in the record of his short life he has left us a heritage in his example and so we in formal session express to his family and his friends all too inadequate our deep sense of personal and professional loss in his removal." It was furthermore decided that the association attend the funeral in a body. The honorary pallbearers represented the medical fraternity, the staff of ex-Governor Woodruff and the Governor's Foot Guard.

Dr. Hotchkiss is survived by a wife and three children.

Digitized by Google

The Military Surgeon

Vol. XXX. MAY, 1912 No. 5

ORIGINAL ARTICLES.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

CLOSING REMARKS TO THE GRADUATING CLASS OF THE NAVAL MEDICAL SCHOOL ON MARCH 25, 1912.

BY MEDICAL DIRECTOR HENRY G. BEYER, U. S. NAVY, PRESIDENT OF THE SCHOOL.

Ladies and Gentlemen:

I like to think of this school as being the legitimate child of Naval Medicine and Surgery, because the idea suggests at once on the one hand, a vigorous growth of the institution and, on the other, the great responsibility on the part of its progenitor, our Bureau. Like every other child, the school has had to pass through the usual trials and tribulations of infancy, even through several short periods of suspended animation, but, thanks to a timely application of the proper baby-incubators and baby-pulmotors, its life has been preserved until, now, it has grown to be a vigorous boy of about ten years of age and promising to develop into a useful citizen of the great republic.

The various problems brought before the laboratory men in the faculty, to be worked out, have increased in number as well as in importance and will continue to do so as time goes on. Since the questions coming constantly before us can be answered only by experienced laboratory men, it would seem to be the paternal duty of the Bureau of Medicine and Surgery to do all in its power to provide them.

Digitized by Google

The members of the faculty of this school are doing the triple duty, namely (1) of working at original problems, (2) that of teaching the young officers how best to serve their country as naval surgeons and sanitarians, and (3) to do bacteriological, chemical and pathological work for the adjacent hospital.

It was centuries ago that the world learned it could have a state without a king and even a church without a bishop, but the time is not yet in sight when a school may exist without its teachers, or a university without professors nor when a naval medical school can be without instructors, specially educated for their own specific duties. With reference to the present faculty, it would be carrying coals to Newcastle, were I to attempt to add one tit-bit of commendation to the excellent work which it has done, of which I have been a daily witness and, some of the results of which we have here in the persons of our graduates and in the examinations which they have passed successfully and with honor. May the school continue to be, as it has in the past, the great supply fountain of naval medical science and sanitation, adapted and shaped to its own peculiar needs.

As President of this school, I very naturally regard the students in it as being my special concern. It is accordingly to those that the few remarks which I have still to make must be limited on this occasion.

Graduation exercises, while perhaps largely occasions for merry-making, for the shaking of hands and the extending of congratulations, have also their serious sides. They mark the setting of milestones on your chosen road through life, which are passed but once; they signify impressive periods at the end of one of the paragraphs in your living autobiography; they are for all of us, especially in our service, a parting of the ways; all things which should be done with dignity and grace as well as with affection and impressiveness. Be the impressions which you carry away with you from here, pleasant or disagreeable, gratifying or mortifying, these occasions and all that they stand for will be the most enduring of your life and never again be forgotten. They will continue to be either sources of mortification and regret or perpetual fountains of delight; prickly thorns in your consciences or life-long sources of satisfaction; they will, such as they are, always remain ever present with you. The present, in other words—and this is what I wish to impress upon you—represents your opportunities for the laying of the founda-

Digitized by Google

tions for your future. As we pass from childhood to manhood and from manhood on through life's completeness to the end, most of us will have the same story to tell. The advice, which it is my imperative duty to give you, is simply the abbreviated experience of a lifetime, summed up in a few pregnant words. Accordingly, and in keeping with these hard-earned facts of experience, as you pass from this school on to the wider and, perhaps, more congenial spheres of your professional activities, it would behoove you to cultivate a high conception of your professional duties and responsibilities, as early in your chosen career as you may become fully conscious of them and to adhere to that conception with devotion and without deviation throughout your whole life, if you hope not only for a successful career, but also for a happy and contented old age.

It is with a considerable amount of a fellow—not to say paternal—feeling for you, that I am obliged, truthfully, I hope, to state, that there is for the serious-minded medical student of our time nothing in sight but work and *hard* work at that. The luxury of leisure for him must be looked for beyond the known world and can here be enjoyed only by those who find pleasure in work.

It, therefore, follows, that your convictions must be firm and deeply rooted in your consciences, for you will often meet with conditions in the service, as well as out of it, under which you will have to do unpopular things, abandon all material considerations and do perhaps your best work without ostentation and in the silence of the dictates of your own pure souls. Having always tried to be a good citizen, a determined adversary of doubtful or wrong practices, an obstinate fighter against past and present evils and, being pronouncedly in favor of a right-minded, strictly scientific and ethical future for the naval medical service, I can assure you of at least one sympathetic ally, when you will have to pass though such an ordeal, to cheer you on.

But it is just this sort of work which I always imagined the framers of your commission had in their minds when they speak of the *special trust and confidence in your Fidelity,* which they repose in you and under which they would like to feel secure in appointing you. It is not the anxiety of the individual that, in the words of Charles Kingsley, is merely "intent upon saving, at all events, his own dirty little soul," which would prove worthy of so profound and important a trust.

Digitized by Google

Laws and regulations are necessary and useful, but they have merely a deterrent function and cannot be made so that they follow up the motives of your actions into the remotest corners of your consciences; it is here that your character must come to the front door to meet them half-way.

I regard it as the undisputed privilege of every head of a naval or military school, if not an absolute imperative duty, to, especially on occasion like the present, impress upon its students, the importance of constantly cultivating a strong and effective sense of duty in the growing generation of officers, more especially so, because we, of the Germanic and Anglo-Saxon races, are all born with an overwhelming sense of our personal rights, not always consistent with the principles which should govern military services. It is even, by the wisest of our time, looked upon as a sign of national decline, when people always clamor for their rights and speak lightly or seldom of their duties.

I like to believe in the influence of this school as inspiring in all of us a desire for a continued and wholesome growth of our corps and as preventing that dangerous form of stagnation leading to certain and inevitable decay. There exists between us all an invisible fraternal chain, along which, very naturally, waves of sympathy pass, but along which, likewise, waves of experience should be constantly passing to and fro. The School is at once a clearing-house as well as the front, center and permanent home for all future co-operative work for our corps. To cease to have interest in it would be an indefensible repetition of an old error! My imagination leads me to see great things in the future of this school for the naval medical service. While it may be true that imagination is only the power to see the things that must be, to believe in the ultimate realization of the apparently impossible, to hope till hope creates, but my imagination in connection with the future of this school has the advantage of being based upon several years of profitable experience with it in the past and I look upon it as the very bulwark and guarantee of the professional excellence of the future naval medical service, with the hope approaching conviction!

In closing I would, therefore, recommend to you to think lovingly of your school, to preserve a reverent attachment for all your instructors, to be loyal to your chief, and, above all, unswervingly loyal to the naval service of which you are the trusted officers.

Digitized by Google

MILITARY ABSENTEEISM IN WAR, WITH SPECIAL REFERENCE TO THE RELATION OF THE MEDICAL DEPARTMENT THERETO.

By EDWARD L. MUNSON, Major, Medical Corps; Director, Field Service School for Medical Officers, the Army Service Schools, Fort Leavenworth, Kansas.

FIELD Service Regulations charge the Medical Department in war "with the administration of the sanitary service. Specifically its duties are:

* * * * * *

4. The methodical disposition of the sick and wounded, *so as to insure the retention of those effective,* and relieve the fighting force of the non-effective."

* * * * * *

The italicized portion of the above paragraph bears directly upon the subject of this paper.

It is evident from the above that, in respect to precedence, Field Service Regulations contemplate that the Medical Department shall attend to conserving the numerical strength of the troops at the front, and thereby maintaining fire effect at its maximum, as of first importance—the removal of the non-effective to follow as an additional aid to military efficiency. However, those two results in practice are very fortunately the outcome of a single act and are achieved more or less synchronously. It will be noted that these obligations thus officially reposed in the Medical Department are wholly based on tactical and not humanitarian considerations. In other words, the Army medical officer is expected to deal first with the physically fit, as a military official, in the promotion of military efficiency and success; secondly, he is to deal, on a similar basis and to the same ends, with the ineffective. The personal welfare of the individual—which is naturally the controlling factor in the relations between the doctor and the disabled in civil life—is thus considered only by implication and as purely secondary; the oath taken by the military surgeon to main-

Digitized by Google

tain the interests of his country on being commissioned as an officer is held superior to his Hippocratic oath as a physician to subserve the welfare of his patients. Fortunately, however, there need, in practice, be no conflict between these two obligations—for the soldier actually in need of serious medical care is, by the very fact of such need, physically unable to bear arms and support the vicissitudes of campaign; and while his military obligations are thus necessarily suspended he may and should, in his own person, become the legitimate object of such humanitarian effort and personal interest and sympathy as will most contribute to his early recovery. But it must be emphasized that the element of humanitarianism is secondary and that such recovery itself is officially to be regarded by the military surgeon more as accomplishing the return of an additional rifle to the firing line than as the happy relief from suffering of a professional patient. This sounds unsympathetic, impersonal and brutal; but the making of war is by its very nature and requirements all of these. The seeking or acceptance of battle brings agonies immeasurable as an inevitable concomitant. These the medical officer must accept as the price of the end required. Its necessities are paramount, military ends are the first to be sought, and the welfare of individuals composing military forces must at all times be subordinate thereto. While the army surgeon therefore properly remains a doctor in respect to his usefulness in the field of professional service, he must exercise his restorative functions with ailing individuals toward an end the purpose of which is essentially military and not humanitarian. In this difference of ultimate purpose rests the difference between the practice of medicine and surgery with military forces and in civil life. Upon the dissimilar viewpoints concerned are and must be based fundamentally different conceptions of the administrative handling of possible cases of disability. If the latter is found actually to exist, there is no difference, other than that imposed by the limitations of military necessity, between the professional management of such cases in military and civil life. But there are vast numbers of "border line" cases, the disabling degree of whose ailments is and must be professionally problematical so long as medicine is not an exact science,—cases of deliberate malingering or of wilful or unconscious exaggeration of symptoms—which must be considered with a coldly criti-

Digitized by Google

cal eye and acted upon with impersonal judgment to the end that the rights of the Government are duly conserved; and that its forces shall not be dissipated through unwillingness of the undeserving, officially supported by an over-credulous and unduly tender-hearted sanitary service, to perform the duty contemplated in the mutual contract of enlistment.

THE MAGNITUDE OF THE EVIL OF ABSENTEEISM AS A WHOLE.

The real value of military history depends not so much upon the setting forth of interesting events as upon such dispassionate statement of facts as may indicate the causes of success on the one hand and of failure on the other. But, unfortunately, the history of wars is usually written from the standpoint of a partisan, tinctured with personal bias or colored to gratify the pride of the nation concerned. Defeats and defects are usually minimized, glossed over or unmentioned through motives of unwillingness to set forth the shameful or the unnecessary, or through patriotic endeavor to contribute to that popular feeling of invincibility in any final recourse to the decision of conflict which adds so much to the esprit and fighting efficiency of troops. There is natural disinclination to set forth the mistakes and shortcomings of either nations or military leaders and thereby appear in a way to detract from their measure of success, to criticise strategy which may, in final analysis and despite defects, have achieved its object, or to depreciate heroism and self sacrifice which, successful or not, are worthy alone of commendation. That non-support of Governments has existed among districts, communities, organizations or individuals is scarcely hinted at by such historians, and such unpleasant subjects as desertions, malingering, absenteeism or cowardice in the face of the enemy are largely left unmentioned or undiscussed in respect to their existence, degree of prevalence or causation. The history of the United States is written from this standpoint, but differs in this respect in no whit from that of other nations. Thus the German history of the Franco-Prussian War, given out for popular information, is a setting forth of unbroken success; only to the eyes of the German General Staff is a secret history of that war available in which its defects, mistakes and failures are unsparingly set forth.

Digitized by Google

But it is chiefly through recognition of the defects of the past that similar faults for the future may be avoided. Nothing is more true, in respect to matters of faulty military administration, than that history repeats itself. These faults can only be discovered and deduced, in their nature and degree, by careful study of the military orders and, more especially, the military correspondence of campaigns. And nothing is more complete as a source of information in these respects, or of more value to us as Americans, than the published records of the Civil War in our own country, illustrating as they do many phases of national ideas and temperament which will have to be considered as potent factors in the conduction of any war in which we may be engaged in the future. These records are in large part the basis of the present discussion.

With respect to the general subject of military absenteeism, the following information regarding the Union forces is given in the Report of the Provost Marshal General made after the conclusion of the Civil War:

Date	Total Strength Present	Total absent from all causes	Total carried on the muster rolls
Jan. 1, 1861	14,663	1,704	16,367
July 1, 1861	183,588	3,163	186,751
Jan. 1, 1862	527,204	48,713	575,917
Mar. 31, 1862	533,984	103,142	613,818
Jan. 1, 1863	698,802	219,389	892,728
Jan. 1, 1864	611,250	249,487	836,101
Jan. 1, 1865	620,924	338,536	959,460
Mar. 31, 1865	657,747	322,339	980,086

It thus appears that, one year after the beginning of the war, 1 Union soldier was absent for about every 5 present; a year later, 1 man was absent for about every 3 present; in the third year of the war 1 was absent for about every 2½ present; and in the final year of the war there were less than 2 men opposing the enemy for every man absent. In 1865, the absentees at one time formed a number five times greater than that of the present army of the United States, or the equal of more than sixteen divisions as at present organized.

Though this appalling proportion of absentees received the early attention of the military authorities and military measures were taken for its prevention, it continued to increase by leaps and bounds, despite every effort and even coincident with almost

Digitized by Google

unbroken military success, to a point where more than one-third the armed land forces of the United States were absent from the colors and beyond military control. Officers particularly contributed to this absenteeism, and by their example did much to cause a similar condition among their enlisted subordinates. The following order on this subject is typical of many subsequently emanating from the War Department and the headquarters of the various Federal armies:

SPECIAL ORDERS, No. 338. HDQRS. OF THE ARMY, ADJT. GEN'S OFFICE, WASHINGTON, *November* 10, 1862.

I. All officers, of whatever grade, belonging to the Army of the Potomac, will proceed to join their respective commands within twenty-four hours. The penalty of disobedience of this order will be dismissal from the service.

* * * * * * *

By command of Major-General Halleck:

E. D. TOWNSEND,
Assistant Adjutant-General.

It has been preceded by the following:

GENERAL ORDERS, No. 65. WAR DEPARTMENT, Adjutant General's Office, WASHINGTON, D. C., *June* 12, 1862.

* * * * * * *

Enlisted men absent from their regiments without proper authority are in fact deserters, and not only forfeit all pay and allowances but are subject to the penalties awarded by law to such offenders.

* * * * * * *

Immediately on receipt of this order, each military commander will publish, three times, in some newspaper, a brief notice requiring all United States soldiers in that city and the country around, who are not under treatment in a United States hospital, to report themselves to him without delay under penalty of being considered deserters.

* * * * * * *

But many soldiers, escaped from immediate military jurisdiction, remained deaf to military orders which the War Department seemed unable or unwilling to enforce. The latter, instead of relying on orders already issued, proceeded to issue more, some typical examples of which are here quoted:

Digitized by Google

GENERAL ORDERS,
No. 92.

WAR DEPARTMENT,
Adjutant General's Office,
WASHINGTON, D. C. *July* 31, 1862.

The following Order is published for the information of all concerned:

The absence of officers and privates from their duty under various pretexts, while receiving pay, at great expense and burden to the Government, makes it necessary that efficient measures be taken to enforce their return to duty, or that their places be supplied by those who will not take pay while rendering no service. This evil, moreover, tends greatly to discourage the patriotic impulses of those who would contribute to support the families of faithful soldiers.

It is therefore ordered by the President—

I. That on Monday, the 11th day of August, all leaves of absence and furloughs by whomsoever given, unless by the War Department, are revoked and absolutely annulled, and all officers capable of service are required forthwith to join their respective commands, and all privates capable of service to join their regiments, under penalty of dismissal from the service, or such penalty as a Court Martial may award, unless the absence be occasioned by lawful cause.

II. The only excuses allowed for the absence of officers or privates after the 11th day of August are:

1st. The order or leave of the War Department.

2d. Disability from wounds received in service.

3d. Disability from disease that renders the party unfit for military duty. But any officer or private whose health permits him to visit watering places or places of amusement, or to make social visits, or walk about the town, city, or neighborhood in which he may be, will be considered fit for military duty, and as evading duty by absence from his command or ranks.

Following the above, and supplementing General Orders 100, August 11, 1862, on the same subject, the War Department issued the following:

GENERAL ORDERS,
No. 102.

WAR DEPARTMENT,
Adjutant General's Office,
WASHINGTON, D. C., *August* 11, 1862.

All leaves of absence and furloughs, by whomsoever given, unless by the War Department are, from this date, null and void, and all officers and privates capable of service will immediately rejoin their respective commands. The commanding officer of each corps, regiment, military post, or other command, will see that the muster directed in General Orders, No. 92, current series, be made on the 18th instant, and that all absentees be marked as therein directed. All persons so marked as absent will be con-

Digitized by Google

sidered as absent without proper cause until they shall adduce evidence before a military court or commission to show that such absence was occasioned by one of the three causes specified in General Orders, No. 92; and until the action of such court or commission they will receive no pay.

By command of Major General Halleck,

E. D. TOWNSEND,
Assistant Adjutant General.

G. O. 338, above quoted, was shortly followed by the following letter, which, among other things, said:

HEADQUARTERS OF THE ARMY,
WASHINGTON, D. C., *November* 25, 1862.

HON. E. M. STANTON,
Secretary of War:

* * * * * * *

Absenteeism is one of the most serious evils in all our armies. Hundreds of officers and thousands of men are almost continuously away from their commands. Many of these are really stragglers and deserters. In regard to officers the evil is being abated by summary dismissals, and if the law could be stringently enforced against the men it would soon put an end to desertions. But straggling on the march and in battle can be prevented only by severe summary punishment inflicted on the spot.

* * * * * * *

Very respectfully, your obedient servant,

H. W. HALLECK,
General-in-Chief.

The same subject was brought up in a letter from the General-in-Chief, about three months later, as follows:

WASHINGTON, D. C., *February* 18, 1863.

HON. E. M. STANTON,
Secretary of War:

Sir: Within the last few weeks large numbers of applications of officers for leaves of absence have been referred to me by the War Department. These applications are mostly based on "sickness in family" or "urgent private business." Many of them are supported by pressing solicitations of high officers of the Government and prominent citizens of their own section of country. I have considered it my duty, on account of the enormous number of absentees from our armies in the field, to approve such applications only in a very few cases, where a refusal would cause great hardships.

I beg leave to refer to a few facts in justification of this course. By the latest returns the entire force of the Army of the Potomac is 238,464, of which 2,935 officers and 82,188 enlised men, or an aggregate of 85,123,

Digitized by Google

are reported absent. This does not include those present sick or unfit for duty. The same ratio applied to our entire military force of 790,197 would give 9,692 officers and 272,379 enlisted men, or an aggregate of 282,071, absent from duty.

While more than one-third of the officers and men of our armies are absent from their commands, the granting of leaves of absence and furloughs should, in my opinion, be limited to cases of the most urgent necessity, and that all other applications, no matter by whom recommended or urged, should be rejected.

Very respectfully, your obedient servant,

H. W. HALLECK,
General-in-Chief.

It will be noted from the foregoing table that the estimate of General Halleck for absenteeism in the entire armies proved to be not far from the facts as subsequently stated in the report of the Provost Marshal General already quoted. But in spite of such efforts to diminish it on the part of the military authorities, the rate of absenteeism so steadily increased that Congress shortly found it necessary to pass an Act of Amnesty to all soldiers who would return to the colors, which was further emphasized by the following proclamation of President Lincoln:

BY THE PRESIDENT OF THE UNITED STATES,
Respecting Soldiers Absent Without Leave.
A PROCLAMATION,

EXECUTIVE MANSION, *March* 10, 1863.

In pursuance of the twenty-sixth section of the act of Congress, entitled "An act for enrolling and calling out the national forces, and for other purposes," approved on the third day of March, in the year one thousand eight hundred and sixty-three, I, Abraham Lincoln, President and Commander-in-Chief of the Army and Navy of the United States, do hereby order and command that all soldiers enlisted or drafted in the service of the United States now absent from their regiments without leave shall forthwith return to their respective regiments.

And I do hereby declare and proclaim that all soldiers now absent from their respective regiments without leave, who shall, on or before the first day of April, in the year one thousand eight hundred and sixty-three, report themselves at any rendezvous designated by the General Orders of the War Department, Number Fifty-eight, hereto annexed, may be restored to their respective regiments without punishment, except forfeiture of pay and allowances during their absence; and all who do not return within the time above specified shall be arrested as deserters and punished as the law provides.

* * * * * * *

ABRAHAM LINCOLN.

Digitized by Google

But the Act of Congress and the Presidential Proclamation proved utterly ineffective. The rate of absenteeism mounted steadily. On Nov. 10, 1864, the War Department issued G. O. 279, ordering all absentees to return and charging the Provost Marshal General with the accomplishment thereof. This was apparently also ineffective, for the following appeal shortly appeared:

GENERAL ORDERS,
No. 301.

WAR DEPARTMENT,
Adjutant General's Office,
WASHINGTON, D. C., *December* 19, 1864.

Every officer and soldier capable of duty is wanted in the field; and if not on duty, they are ordered to their respective organizations.

All Provost Marshals and Boards of Enrollment are instructed to employ the most diligent exertions in forwarding soldiers to the front, and arresting deserters, shirkers, and all fit for duty who are absent without proper authority.

Surgeons in charge of hospitals are directed to send forward all who are fit for service, taking care, however, not to expose any who are unfit.

Recruiting officers are enjoined to diligence, and those who are found guilty of neglect or useless the Adjutant General is directed to recall immediately and send to their commands.

Every effort must be put forth to fill up the ranks, strengthen the armies, and aid the patriotic and gallant troops now smiting the reeling enemy with victorious blows.

By order of the Secretary of War,
E. D. TOWNSEND,
Assistant Adjutant General.

While the War Department was in this manner endeavoring to mitigate the evil of absenteeism, the latter was a cause of grave concern to commanders of troops at the front, as witness the following typical examples of correspondence on this subject:

HEADQUARTERS FIRST ARMY CORPS,
CAMP NEAR SHARPSBURG (MD.), *September* 23, 1862.

Brig. Gen. R. B. Marcy, Chief of Staff:

General: I enclose, for the inspection and consideration of the commanding general, a comparative statement exhibiting the strength of this corps on the 18th instant, the day after the last action, and its strength on the 22d instant, with a column giving the increase (of absenteeism) in the four days intervening. This statement has been sent to division commanders, with orders to use every effort to account for the increase, and report the names of officers and men absent on the 18th without authority.

Digitized by Google

The development here made of straggling and abandoning their commands on the part of officers and men is so startling, and so important in its bearing on the reliance to be placed on the command with which I have been honored, that I deem it due to myself and the general commanding to make this communication.

How this serious and terrible evil can be cured is a difficult question to solve, inasmuch as the disease seems to pervade the whole body. Nothing, in my judgment, short of taking of life will have any effect, but that some measures are indispensable is rendered evident by the statement now inclosed.

Very respectfully, your obedient servant,

GEO. G. MEADE,
Brigadier-General, Commanding.

Circular.

HEADQUARTERS ARMY OF THE POTOMAC,
CAMP NEAR ROCKVILLE (MD.), *September* 9, 1862.

The general commanding has observed the frequent absence from their commands while in camp, and from their columns on the march, of superior officers. These laxities must be remedied. Inattention and carelessness on the part of those high in rank has been one fertile source of the straggling and want of discipline which now obtain in the various corps.

The safety of the country depends upon what this army shall now achieve; it cannot be successful if its soldiers are one-half skulking to the rear, while the brunt of battle is borne by the other half, and its officers inattentive to observe and correct the grossest evils which are daily occurring under their eyes.

The general commanding entreats all general officers to lend every energy to the eradication of the military vice of straggling. He feels assured that their united determination can break up the practice in a single week.

By command of Major-General McClellan.

S. WILLIAMS,
Assistant Adjutant-General.

HEADQUARTERS ARMY OF THE POTOMAC,
September 28, 1862.

BRIG.-GEN. LORENZO THOMAS,
Adjutant-General, U. S. Army.

General: The reduced condition of the old regiments, and the futility of dependence upon the recruiting service for the replenishing of their ranks, points to the necessity of earnest endeavor to collect all the absent officers, and men belonging to these organizations. I am aware that this subject has already occupied the attention of the War Department.

* * * * * * *

Digitized by Google

The stragglers, too, are numerous in every division of the army; many of these desert. The States of the North are flooded with deserters, absentees, etc. One corps of this army has 13,000 and odd men present and 15,000 and odd absent; of this 15,000, 8,000 probably are at work at home, deserters. They can be secured and returned, and I beg that the fullest exercise of the power of the Government may be devoted, if necessary, to the accomplishment of this end. It will have the happiest result in swelling the ranks of the old regiments, and in preventing their future reduction.

I am, general, very respectfully, your obedient servant,

GEO. B. MCCLELLAN,
Major-General, Commanding.

But the evils of absenteeism were not alone to be found in the armies of the North. They everywhere sapped the forces of the Confederacy and caused grave anxiety to its military commanders. The following are typical examples of the orders and correspondence elicited thereby:

GENERAL ORDERS, No. 149.

HEADQUARTERS DEPARTMENT No. 2.
TULLAHOMA, TENN., *November* 17, 1862.

I. The general commanding announces, with pain, the shameful fact that numerous officers and soldiers are absent from this army without leave or sanction. This evil, so injurious to the service, and discreditable to those who, wearing the uniform of the Confederate States, are now living in ease and idleness, instead of sharing the common perils and duties of their companions in arms, must be averted. Such dereliction of duty, whilst in the presence of an active and powerful enemy, calls not only for rebuke from the commanding general, but also for efficient measures on the part of the citizens of the South to secure the return of such delinquents to their commands. The commanding general orders that officers who continue absent without leave shall be brought before the examining board authorized, by an act of Congress, entitled "An Act to relieve the army of disqualified, disabled, and incompetent officers," in order that their names may be dropped from the rolls of the army whose glory they wish to reflect, but whose dangers and toils they are unwilling to encounter.

II. All soldiers who continue absent will be treated as deserters and punished as such.

By command of General Bragg,

GEORGE WM. BRENT,
Chief of Staff and Assistant Adjutant-General.

Two days later than the above order, and to assist in its provisions, General Bragg caused the issue of S. O. No. 301, by which:

Digitized by Google

"1. Lieut. Col. H. W. Walker, Assistant Adjutant General, is assigned to the special duty of gathering the absentees from this Army."

But the orders issued and measures taken evidently failed of the desired results, for ten days later the following—more in the nature of an appeal than an order—emanated from the same headquarters:

GENERAL ORDERS, No. 4. HEADQUARTERS ARMY OF TENNESSEE, MURFREESBOROUGH, *November* 29, 1862.

Gratified beyond expression at the confident tone and fine discipline which pervades his troops, and full of admiration at their fortitude and patient submission to privations, united to their gallantry and heroism in the recent arduous and brilliant campaign, by which so much valuable territory has been redeemed, and so many true and loyal people liberated, the general commanding is induced to publish full pardon to all soldiers absent without authority who shall within a reasonable time return to their command and report for duty. They are urged to avail themselves of this privilege before the inauguration of the new system of military courts established by law as a vigorous and prompt administration of justice to all delinquents. Hereafter no excuse will be allowed those who abandon their colors and leave their comrades to perform their duty and defend their homes.

Commissioned officers guilty of such offenses are excluded from the benefit of this amnesty, and will not be excused. They are held to be unworthy to command gallant men, and to merit exemplary punishment.

Vigorous measures have been adopted to arrest all who fail to respond to this last and generous appeal, and they must expect full justice, tempered only with the mercy they have failed to show either to their comrades or cause.

By command of General Bragg,

GEORGE WM. BRENT,
Chief of Staff and Assistant Adjutant-General.

Under date of Jan. 18, 1863, General Bragg issued another appeal in which:

"Commanders are earnestly invoked to aid the efforts of the commanding general to strengthen the ranks of the army, as all sources have failed except those at our own control."

Ten days later, the following order was issued:

GENERAL ORDERS, No. 13. HEADQUARTERS ARMY OF TENNESSEE, TULLAHOMA, *January* 28, 1863.

I. When an officer or soldier fails to rejoin his proper station at the expiration of his leave, whether ordinary or on sick certificate, he will

Digitized by Google

be reported as absent without leave. Failing to join, or explaining satisfactorily his absence, after seven days the soldier will be proceeded against as a deserter. The officer will be notified, and his name immediately brought before the board to relieve the army of disqualified, disabled, and incompetent officers. The name will in all cases be published in the newspapers nearest the residence of the delinquent.

II. Paragraphs I and II, of General Orders, No. 96, Adjutant and Inspector General's Office, are republished for the information of the army:

I. All commissioned officers and enlisted men who are now absent from their commands from any other cause than actual disability, or duty under orders from the Secretary of War or from their department commanders, will return to their commands without delay.

II. Commissioned officers failing to comply with the provisions of the foregoing paragraph within a reasonable length of time, in no case to exceed twenty days after the publication of this order, shall be dropped from the rolls of the army in disgrace, and their names will be furnished to the commandant of conscripts for enrollment in the ranks.

The commanding general expects a rigid and efficient execution of this order. Commanding officers will drop from the rolls of the army the names of all commissioned officers who have failed to obey this order, and will report them promptly to these headquarters, to be forwarded to the War Department and superintendent of conscripts.

By command of General Bragg,

GEORGE WM. BRENT,
Assistant Adjutant General.

And again, about ten days later, came another order:

GENERAL ORDERS, No. 23.

HEADQUARTERS ARMY OF TENNESSEE, TULLAHOMA, *February* 6, 1863.

I. A rigid investigation of the returns and muster-rolls of this army, commenced two months since, and which is still being pursued, has developed the astonishing fact that several thousand officers and men are absent, in violation of the orders of the commanding general, and upon permission granted and details ordered by every grade of commissioned officer from lieutenant up. The parties committing these offenses will be held to a strict accountability for the past, and their official acts closely scrutinized for the future. The country is full of straggling officers and soldiers holding no other authority than these assumptions, who are hereby required to return to their posts and resume their duties.

* * * * * * *

By command of General Bragg,

GEORGE WM. BRENT,
Assistant Adjutant General.

Digitized by Google

The above series of illustrative orders, taken from the western army of the Confederacy, do not represent conditions peculiar to it alone but such as commonly obtained in all the forces of the southern states.

From the several causes which will later be discussed in detail, commanders on both sides found their forces constantly melting away and in no position either to take the aggressive, on the one hand, or to safely rely on the successful defensive, on the other.

Upon, in his "Military Policy of the United States," page 408, says: "July 15, 1862, the present for duty in the Army of the Potomac was 88,665 out of an aggregate of 144,407.

"The aggregate absent from the two (Union) armies which should have been united at Antietam was 101,756. The total in action was but 87,164."

In other words, about 60% of the Union forces which should have been engaged in the action just named were absent at the time their services were needed in the Nation's extremity.

In response to request for information as to the number of absentees from our forces during the War with Spain, the Adjutant General replied that such data has never been compiled and can not now be furnished. Even though the Spanish War was a very brief affair of less than four months' duration, and trivial from the standpoint of military operations, while our previous experience indicates that absenteeism is an evil which grows in magnitude with length of hostilities, it will be subsequently shown that the proportion of absentees must have become very considerable and probably was proportionately very much greater than that for the like period in the Civil War.

THE GENERAL CAUSES OF ABSENTEEISM.

In a general way, absenteeism may be regarded as an expression of dissatisfaction with military service and conditions, and as possible only under insufficiently strict disciplinary oversight and control. Forced drafts on both sides in the Civil War had much to do with bringing into the services many men whose interests were largely personal or who were lukewarm supporters of, or even secretly opposed to, the policies of their respective governments. On the Southern side, conscription to fill the ranks

Digitized by Google

was resorted to as early as April 16, 1862, and included all males between the ages of 18 and 45; while on March 3, 1863, the Union Congress passed an Act for the recruiting of the ranks by forced draft, without State intervention. On referring to the Provost Marshal General's table of present and absent, already given, it will be seen that the proportion of absenteeism in the Union forces after the passage of this Act materially increased. It will also subsequently appear that following this Act, the number of discharges for disability leaped to a magnitude which threatened to paralyze the military arm. Desertions increased, and many men who had been forced into an unwilling service endeavored to leave it at every possible opportunity and in every manner—honorable or otherwise. The total number of desertions from the Union forces reported by the Provost Marshal General, up to March 17, 1867, amounted to no less than 199,045.

The following table, quoted from Phisterer's "Statistical Record of the Civil War," sheds additional light on the causes of absenteeism. It is calculated for the Union forces, on a basis of 1,000 men, to give average figures for the entire period of the war:

TROOPS	Absent, cause other than sickness	Absent, sick in hospital	Total Absentees	Effective strength per 1000 men
Regulars	226	64	290	710
Volunteers	265	89	354	646
White troops	264	86	350	650
Colored troops	158	46	204	796
Mixed commands (white and colored)	258	80	338	662

A fair analysis of the above would seem to indicate that the better discipline undoubtedly obtaining among the troops of the regular army bore fruit in a higher efficiency as expressed in less straggling, desertion, sickness, malingering, and other causes than was the case in respect to the less well controlled volunteers.

The latter were probably also more apt to secure political interest and favor. The much lower rates for absenteeism among the colored troops may have depended in part on superior physical excellence, they being proportionately few in numbers and selected from a large amount of material. But being fresh from slavery they were undoubtedly less independent, more tractable

Digitized by Google

and obedient to their white officers, less apt to successfully malinger and not liable to desert or be absent without leave, as they had no place to which to go. Moreover, as non-voters, they were of no use to the politicians.

That a low standard of discipline existed which was responsible for much of the absenteeism expressed by straggling, absence without leave and desertion is made quite clear from the text of the official correspondence which has already been and subsequently will be quoted.

But very potent causes existed for lack of discipline, in addition to the hasty aggregation of vast numbers of officers and men unused either to command or to obey others. In the face of political influence emanating from the several states and operated from Washington, the Federal commanders in the field, however aware they might be of certain of the causes which were destroying the efficiency of their armies, were largely powerless to bring about their remedy. This influence was exerted as a means of political favor to individuals, by whom, or their friends and relatives, it was thought that party policies and the fortunes of political favorites at home might be furthered. Such influences prevailed throughout the war, though somewhat diminished by later legislative provision permitting soldiers in the field to cast their votes for elections as if at home. These malign influences were particularly though indirectly exerted through the Medical Department, whose humanitarian purposes and beneficent ends afforded a plausible screen for ulterior policies and personal ambitions, of which the practical politicians were prompt to see the advantages. The first step came in the establishment of state hospitals, and organized measures for the removal from the front of soldiers thereto. To this was shortly added such facility of securing leave of absence or discharge through the agency of the Medical Department of the army and medical profession of the country as well nigh disrupted the military forces of the nation.

UNNECESSARY WITHDRAWAL OF TEMPORARILY UNFIT AND MALINGERERS FROM THE FRONT.

The war had not continued ninety days when an organized movement was set on foot to facilitate the return of soldiers to

Digitized by Google

home and friends, by agents irresponsible to the national government, under the following correspondence:

WASHINGTON, *July* 15, 1861

HON. SIMON CAMERON,
Secretary of War:

DEAR SIR: I have the honor to inclose a circular from the Governor of Wisconsin suggesting a humane provision for the care of sick and disabled soldiers, and would respectfully ask attention to the request which accompanies it.

I am, sir, very respectfully, your obedient servant,

RUFUS KING.

(Inclosure)

MY DEAR GENERAL: I have sent to each of the Governors a circular like the within. I shall send men with each of our regiments. I wish you would, in view of what I suggest, procure an order from the War Department permitting these agents to go with our regiments, and to have all the proper privileges of the camp to perform the duties suggested in my circular letter.

Yours truly,

A. W. RANDALL.

(Sub-inclosure)

EXECUTIVE OFFICE, MADISON, WIS., *July* 4, 1861.

His Excellency the GOVERNOR of ———:

* * * * * * *

I have determined, in behalf of Wisconsin, to send with each regiment men whose sole business it shall be to stay with the regiment, look after its welfare, and to see that every man, who, from sickness or the casualties of war, becomes so far disabled that he can no longer endure the fatigues or perform the duties of the camp or field, shall be safely and comfortably returned to this State and to his family or friends. In health or sickness, in triumph or defeat, these men are ours and our country's, and our obligations and hopes equally go with them. May I invite you to cooperate in this movement? The agents appointed by and for the several States for these purposes can to a very large extent act in concert and aid each other. I cannot doubt but that by a proper effort all railroad and steamboat companies, touched by the humanity of the object, can be induced to pass all disabled persons free upon a certificate from the proper responsible authority that as such they were honorably discharged from service. The expense will be comparatively light and the good to result incalculable.

Very respectfully,

ALEX W. RANDALL.

The ostensible purpose of this correspondence was well enough, for it is undeniable that at that time the military establishment

Digitized by Google

did not possess sufficient suitable provision for the care of the disabled near the front. But that the kidnapping agencies thus officially established with state regiments were not without material influence in prejudicing the judgment and actions of the civilian doctors, who, donning a uniform, had lately come out as surgeons with the organizations recruited in their community or vicinity, cannot be doubted. The way was thus at the very outset made irresistably easy for the malingerer or the slightly indisposed, who ought to have been kept near the front, to return home and thereby largely pass from under military control.

But the experience of a few months evidently convinced the War Department of the ruinous results of the system thus established, and effort was made to put some check upon it, under the following order:

GENERAL ORDERS,
No. 48.

WAR DEPARTMENT,
Adjutant General's Office,
WASHINGTON, *April* 28, 1862.

* * * * * * *

II. Applications for transportation for the removal of sick men, for nurses, and for supplies for the sick will be made hereafter to the Surgeon-General. The Surgeon-General is also authorized to give passes at his discretion for private physicians, nurses, and friends of sick and wounded soldiers to attend and visit them.

To this order the offending civilians apparently gave little heed, disregarding it or going over the head of the Surgeon General in successful appeal to the Secretary of War, and eliciting the following caustic letter:

SURGEON-GENERAL'S OFFICE, *May* 17, 1862.

HON. E. M. STANTON,
Secretary of War:

SIR:

I have respectfully to represent that great confusion and inconvenience to the service, together with much suffering to the sick and wounded, result from the interference of State agents and others who are not acting under the direction of this Bureau. Men are taken from the hospitals before time is given to perform necessary operations, or so soon after the operations that death is very frequently the consequence. I have seen enough to satisfy myself of the truth of what I say, and have also the evidence of those who have witnessed the operation of this system in other parts of the country. So well convinced are the agents

Digitized by Google

of the States of Maine and New Jersey of its impropriety that they voluntarily gave up their appointments and returned home. I have, therefore, respectfully to request that to this Bureau may be assigned the entire control of the sick of the Army, whether in camp, hospitals, or transports. I am ready to assume the entire responsibility and to answer for the full performance of the duties involved, provided the means of transportation now in the hands of State agents, State surgeon-generals, and others, be put at my disposal, in order that persons accountable to this department may be placed in charge.

I am, sir, very respectfully, your obedient servant,

WILLIAM A. HAMMOND,
Surgeon-General.

(Indorsement)

WAR DEPARTMENT, *May* 19, 1862.

You have authority, in virtue of your office, to take charge of all the sick and wounded of the Army wherever they may be, and you are responsible for their care, comfort, and medical treatment. The Quartermaster General, on your requisition, will furnish all necessary transportation.

By order of the Secretary of War,

P. H. WATSON,
Assistant Secretary of War.

Despite the fact that the evils of this system had thus been made clearly apparent to the military authorities, instead of taking direct measures to do away with or control it the War Department beat about the bush and mildly contented itself with the following:

GENERAL ORDERS,
No. 78.

WAR DEPARTMENT,
Adjutant General's Office,
WASHINGTON, *July* 14, 1862.

1. * * * * * The unauthorized removal of soldiers from under control of the United States authorities, by any agents whatever, subjects them to loss of pay and other penalties of desertion. * * * * *

The pernicious influence exerted by these State agents was continued by the agents of the "Christian Commission," later organized, through the status and organization of the latter made it more amenable to military control. That a similar influence in the dissipation of military force was exerted to some extent by the Red Cross Society in the War with Spain—and would be so exerted in wars of the future, by any society whose purpose is

Digitized by Google

solely humanitarian, is undoubted and furnishes a reason by itself alone sufficient to demand the exclusion of civilian relief agencies in war from points where they could come in touch with and be influenced by and for the malingerers and cases of temporary disability which ought to be held at the front with the fighting troops.

The organization and temporary support of the new levies had, under the War Department orders of May 4, 1861, and the subsequent hasty legislation in July of that year, been largely turned over to the States. Of the medical aspects of the situation, Upton, in his "Military Policy of the United States," page 402, says:

"The recruitment and subsistence of the new levies till they were mustered into the service, naturally carried with it the care of the sick. To meet this necessity, State and private hospitals sprang up in nearly all large cities.

"The maintenance of these hospitals soon became a burden to the States but instead of urging they be discontinued, the governors demanded that they be transferred to the Government, or that 'United States General Hospitals' be established in their places.

"The governors of the different States did not ask for State hospitals in the sense of hospitals supported and controlled by the individual States, but they did ask for the establishment of United States general hospitals at different places within their States, and further, asked that the sick soldiers from the different States be sent for treatment to the hospitals in those States, and this, irrespective of distance, expense, or convenience.

"The patients in these hospitals were by no means limited to the men who fell ill before their regiments left their States,"

but included thousands of men sent back not only from the camps and battlefields of the armies, but needlessly transferred from other United States General Hospitals which had been established in proper relation to the position of the field forces.

Having once surrendered control of these men to the States, the War Department soon found itself unable to regain it. To jog the State authorities into some sense of co-operation and duty, the following order, of diplomatic phraseology, was issued:

"GENERAL ORDERS, No. 60.

WAR DEPARTMENT, WASHINGTON, *June* 6, 1862.

Digitized by Google

* * * * *

II. A large number of volunteers are absent from their regiments who are now fit for duty. To enable them to return, the Governors of States are authorized to give them certificates or passes which will entitle them to transportation to the station of the nearest U. S. mustering officer or quartermaster, who will pay the cost of transportation on such certificates or pass and provide transportation for the soldier to his regiment or station.

* * * * * * *

The results of the above order not proving satisfactory, the following was issued to further limit invaliding into State or private hospitals:

"GENERAL ORDERS, No. 78.

WAR DEPARTMENT, Adjutant General's Office, WASHINGTON, *July* 14, 1862.

I. The many evils which arise from giving furloughs to enlisted men, require that the practice shall be discontinued. Hospitals, provided with ample medical attendance nurses, food, and clothing, are established by the Government, at great expense, not only near the scenes of active military operations, but in many of the Northern States. When it is expedient and advisable, sick and wounded patients may, under the direction of the Surgeon General, be transferred in parties, but not in individual cases, to hospitals at the North; and, as far as practicable, the men will be sent to States in which their regiments were raised, provided United States hospitals have been established there. Such regulations will be adopted at all the hospitals as will permit relatives and friends to visit the patients, and furnish them with comforts, at such hours and in such manner as will not interfere with the discipline of the hospitals and the welfare of the mass of patients. The men will thus be under the fostering care of the Government while unfit for duty; will be in position to be promptly discharged if proper and, being always under military control, will be returned to their regiments as soon as they are able to resume their duties.

* * * * *"

The abuses connected with the above singularly inefficient system for caring for the disabled in the Civil War are of particular importance in view of the fact that many of the conditions giving rise to them were in vogue during the Spanish War and urgently need consideration in advance to endeavor to prevent their almost certain development in any possible future war.

Certain features of the objectionable system were, during the

Digitized by Google

Civil War, ultimately incorporated into law; but the system was originally established under the Secretary of War; and, if it be urged that such establishment was a natural outcome of the power given the States by existing laws regarding the methods for raising and supporting troops, it must not be overlooked that the main features of those laws were simply an enactment of the War Department orders of May 4, 1861—so that the responsibility for the state of affairs that existed may, it would seem, justly be placed upon the War Department authorities quite as much as upon Congress.

To further comprehend this remarkable system of disposing of those claiming disability, it must be understood at the outset that, as was usually the case with the objectionable methods of the period, politics was at the bottom of it.

"It was early discovered by military commanders, that when men left the field for medical treatment, they were lost for the campaign, if not for the war. The Medical Department to remedy the evil, began, in 1861, to establish general hospitals within all the great military departments, where the sick and wounded received every care and attention which liberal appropriations and medical skill could suggest." (Upton, Mil. Policy, U. S., p. 403.)

But these arrangements failed in several respects to answer to the demands that arose. In the first place a Massachusetts soldier who was sick in hospital near Washington was for the time being neither carrying a gun nor able to be on hand to exercise his high privilege of casting his ballot in the Massachusetts elections—and the latter fact especially disturbed those public officials or candidates who believed themselves to be the soldiers' choice for office.

At this time the expedient of permitting the soldier to vote in the field had not been adopted. Again, the family and friends of the sick soldier wanted him at home; and a knowledge of this fact made the politicians peculiarly solicitous to secure the transfer. Lastly, soldiers themselves would naturally welcome the change; some only because of the natural pleasure at the prospect of a return to their native State, an opportunity to see their families and friends, and a temporary relief from the monotony and restraint of life in a military hospital; others, because they hoped

Digitized by Google

thereby to delay or evade returning to the field; and others still, because of the great extent to which such transfer facilitated successful malingering or desertion. The easiest way for the accomplishment of all these desires was through misuse of the Medical Department.

Against influences of such strength, the statements of the Surgeon-General and his subordinates to the effect that these transfers were unnecessary or injurious, and the protests of army commanders that they would deplete the forces in the field to the point of inefficiency, were unheeded. The governors made themselves the special champions of the policy of these so-called "State Hospitals"—which in the main meant United States General Hospitals unnecessarily established in a State distant from the theater of war. The War Department, surrendering absolutely to these advocating this extravagant and vicious system, practically delegated to the State authorities everything connected with the control of the sick and wounded—with the important exception of paying the bills. State agents appeared in the immediate theater of military operations and with their chartered steamers and trains began the wholesale removal of sick, wounded, malingerers, and would-be deserters to hospitals thousands of miles away—whence very few ever returned to duty. These transfers were nominally under the direction of the Surgeon-General; but if the latter attempted to balk at some particularly flagrant case of extravagance or political chicanery, the interested parties would appeal directly to the Secretary of War, who would, at times, make the transfer, "without even the knowledge of the Surgeon General." (Upton, p. 405.)

"The system once in operation, military commanders were powerless to stop, or even check, the depletion of their armies." (Upton, p. 424.)

Referring to the effects of General Orders No. 78, War Department, July 14, 1862, Surgeon Smith, U. S. A., then Assistant Surgeon General, says:

"Under this order immense numbers of sick and wounded were transferred by the order of the Surgeon General. These numbers I have no means of knowing, but believe they reached hundreds of thousands, and for them was established a magnificent and expensive system of transportation by railroad and steamer. * * *

Digitized by Google

"It was found that separating the soldier so far from his company and regiment engendered a state of chronic absenteeism; armies were depleted, and the generals, commanding the principal armies, objected in consequence to the separation of the sick from their immediate commands save when necessary to convalescence and recovery of health."

The system, however, had further ramifications. The sick and wounded, having passed first from field or other hospitals in the theater of active operations to the distant "State Hospitals" were there, as felicitously expressed in G. O. 78, to be "under the fostering care of the Government." As a matter of fact, under the next development of the system, they soon passed not only from under this "fostering care" but also out of any military control whatever; for they were soon allowed to scatter to their homes. Those that were patriotic enough to do so, ultimately found their way back to the colors unless discharged. Thousands, however, totally undisturbed by the alternate appeals and threats which constituted Mr. Stanton's chief methods for securing the return of absentees, settled quietly down into civil pursuits, or became professional bounty-jumpers, according as their individual tastes suggested.

To criticism of the Secretary of War for his share in the foregoing and other similar proceedings the customary answer is to justify him upon the ground either of humanity or of political exigency. General Upton thus disposes of these arguments:

"While this system reduced the strength of our armies vastly more than actual sickness or wounds received in battle, the reader may nevertheless think it was justifiable on the gound of humanity. No mistake could be greater.

"Before the campaign of 1862 opened the State agents had spirited away thousands of men who in a few days would have been able to return to the ranks. Shorn in this manner of one-third to one-half of their strength our armies were frequently compelled to meet the enemy with equal if not inferior numbers. The war instead of being decided in a single campaign, lengthened into a series of bloody, but indecisive battles. The contending hosts met and fought only to melt away under each other's fire.

"Humanity may have benefited a few deserving soldiers by sending them back to their States, but the penalty exacted from their comrades was a death list, which soon swelled to hundreds of thousands. Events also proved that the arguments of the politician were worthy of less consideration than those of the humanitarian. The Surgeon General and

Digitized by Google

the military commanders could have told them that defeat in the field meant defeat at the polls; but the politicians, supercilious and headstrong, would listen to no advice. They succeeded in getting a few thousand soldiers to the polls; but neither their presence nor their votes could overcome the depressing effect of the reverses already related. Nearly everywhere the Administration lost ground. In Pennsylvania the opposition gained the legislature and a United States Senator. In New York they elected a governor by a majority of more than 10,000." (Upton, Mil. Policy, U. S., pp. 402-10.)

[TO BE CONTINUED.]

Digitized by Google

THE RUSSIAN ARMY MEDICAL SERVICE IN MANCHURIA—A CRITICAL REVIEW OF SOME OF ITS PHASES.

By GUSTAVUS M. BLECH, American Red Cross Field Corps.

"In War everything is subservient to organization"—Pirogoff.

ABOUT seven years have elapsed since the Russo-Japanese war went down into history as an epoch-making event. For Russia it was merely a colonial war, but one of far reaching political effect. For Japan it meant a good deal, if not everything. Russia, with its million and a half men under the colors enjoyed a reputation for superiority when the war began. The Japanese splendidly demonstrated what modern methods and unity of purpose can accomplish.

It is not my intention to discuss the military phases of the war, except so far as they are concerned with the medical service. Knowing the high degree of classical and technical training required of every Russian physician I naturally hoped that the medical department at least would creditably acquit itself in its own sphere of activity. Thousands of Russian physicians and surgeons of high professional attainments sent to the front undoubtedly rendered brilliant professional services as individuals, but they themselves admit that as an organization all coöperation and cohesion were lacking. Surely the average Russian physician favorably compares with his Japanese comrade. Where, then, was the fault? Who was to blame?

Distinguished foreign observers, among them our own Harvard, Hoff and Lynch, have given us an excellent insight into the true situation, but none can offer as detailed a statement as those who have smarted under a handicap which would have destroyed the initiative of less intelligent men than the Russian physicians. Since the close of the campaign an enormous literature on the medical service has appeared in the Russian technical press, and it is time that the participants be given the word on the old-established principle of *"et alter pars audiatur."*

Bt it understood that the author does not pretend to pose as a medico-military expert, but that in accordance with a promise

Digitized by Google

recently made in another department of this journal, he gathered the available material and reconstructed it in a fashion to be of interest to American medical officers. If he has overstepped the limits of an "interpreter" he stands ready to be corrected whenever his own conclusions are at variance with actual facts. At any rate, a serious attempt has been made to avoid errors, unless possibly the official documents themselves are in error.

I. "VOLUNTEER" MEDICAL PERSONNEL.

Every graduate in medicine, if he does not enter the Russian army as an active medical officer, is automatically placed on the reserve list with a distinctive military status. Under the law he is in duty bound to advise the chief medical inspector's office, attached to the War Ministry, when he desires to be released from the reserve. Physical incapacity, certain professional appointments, etc., exempt from military service. Up to the outbreak of the war comparatively few physicians had asked for release from inscription on the medical reserve.

The War Ministry and general staff had worked out for some years past not only complete descriptive lists of all available medical personnel, but a general scheme of "mobilization" which, theoretically at least, seemed ideal. The outbreak of the Russo-Japanese War and the appeal of the Imperial Representative Admiral Alexicheff for large numbers of physicians gave the War Ministry the very first opportunity to test its mobilization scheme in actual practice.

It was then that surprises came thick and fast—surprises which, it is believed, other governments are bound to experience if they commit the error of expecting a large response from the more responsible medical men, engaged in civil practice in their possessions.

The War Ministry had on its lists a total of 7,065 physicians. Of these only a total of 3,418 proved acceptable. The rest were either rejected for cause, had left the jurisdiction of the military authorities or had enlisted with the Red Cross.

The nature of practice followed by medical men called to the colors must or should play some role in determining their fitness

Digitized by Google

for service, though this was ignored by the Russian authorities. I quote from the official statements the following table:

Number of Practitioners	Surgery	Internal Medicine	Gen'l Practice	Gyn. & Obst.	Ophthal-mology	Ven. Dis. & Dermat.	Ear, Nose & Throat
Total	792	1523	425	474	185	275	116
Accepted	471	949	212	287	101	197	62

Number of Practitioners	Pedia-trics	Neuro-psychol	Dentistry	G. U. Surgery	Laboratory workers	Not in practice	Unknown
Total	192	229	39	17	105	45	2641
Accepted	110	130	21	10	57	17	810

Grand total Examined or Called 7,065
Grand total Accepted 3,418

A casual glance at this table will show that many men were selected who were totally unfit for even professional services; 17 were only nominally physicians for they had chosen different vocations; 21 had abandoned medicine for dentistry, and the pediatricians and oculists certainly had to learn a good deal of general medicine before entering the field hospitals. It must be admitted that some specialists in ear affections proved useful as experts in the observation and treatment of ear concussions sustained on the firing line.

What surprised the War Ministry most was the great number of letters received from physicians, asking release from the reserve, as soon as war had begun. Rigid inquiry showed that a goodly number of these requests were founded on fact. It will lead to no particular purpose to publish a complete list of the causes for rejection, but a few will suffice to show in what manner the general staff was kept in ignorance of the available personnel, because of the failure on the part of the afflicted to ask for release from the reserve at the proper time. Here is a partial list: Tuberculosis of the spine, 21; progressive paralysis, 3; epilepsy, 5; exophthalmic goitre, 4; blindness of one eye, 3; trachoma, 3; double cataract, 1; one was breathing through a tracheotomy tube; myocarditis, 13; dilatation of heart and gen-

Digitized by Google

eral arteriosclerosis, 13; nephritis, 19; diabetes, 16; gallstones, 6; lithiasis, 7; round peptic ulcer, 4; chronic duodenal catarrh, 1, etc., etc. Many of the above had been helpless invalids for years, and the medical inspectors expressed their chagrin at having to verify their claims at a time of haste, when with a little regard for the law these men could have obtained release when first stricken and thus saved much trouble to themselves as well as to the government examiners.

But what seems to be a reflection on the integrity of many applicants is the fact that they presented certificates of disability from reliable authorities (head surgeons of public hospitals, military commissioners) only to return to a practice in comparison with which service in the field meant recreation. Anonymous letters supplied much information to the War Ministry. Re-examinations were ordered and many of those released on certificates of disability were sent to the front. The government did not blame the original signers of the certificates as it was felt in administrative circles that probably it was no easy matter for them to question the veraciy of friendly colleagues and submit them to rigid physical examinations. The real reason was found in the unwillingness of these reserve physicians to abandon lucrative civil appointments for the meager salary paid subaltern physicians. The war with Japan was not popular with the masses. To be torn from fixed occupations merely to add a piece of land to the already vast territories of the Empire seemed to the majority entirely uncalled for.

Thus there were many factors which greatly reduced the number of reserve medical officers. The question presents itself how many were actually needed? The general staff answered this question before the war. It relied on estimates from the Turko-Russian war in 1877-8. The Russian Army then counted 1,452,752 officers and men. At that time there were on duty 1,034 military and 2,912 civil physicians or a total of 3,960, which means one medical man to 368 combatants. Germany, during the Franco-Prussian war, supplied one physician to 170 combatants. That is relatively more than twice as many as served in the Turko-Russian campaign. The latter figure was accepted as normal. With due allowance for losses, disability, sickness, etc., estimated at about 20% the authorities agreed that for the

Digitized by Google

million and a half army in the far east 7,500 reserve physicians were actually needed in addition to the active, permanent army surgeons.

Russia had a total of 18,144 licensed physicians in 1904, of which number 737 were women. Of these only 6,432 or 34.95% were on the list as reserve physicians, the balance being freed from such service by law. At the beginning of the war 633 medical men were added to the corrected list.

How the "mobilization" was accomplished can be best realized by following a specific example. Dr. W., a highly cultured physician, who for years had devoted himself to his general practice, received a telegram to report at once to the military commission—which was in session in a city forty or fifty miles away. He dropped everything, hurried to the town, reported and there was told that he had been called into active service and should report himself to the staff of the ___th infantry division of the city of_____. According to law, he had two days to arrange his domestic affairs and three in which to equip himself. Dr. W. hastened to the tailor—he payed double the usual price for his uniform because it must be ready in five days. What this uniform was like he did not know. He did not even know what other equipment he would need, and what he would be allowed to carry with him. Dressed in the uniform and saluted by soldiers, the public and uniformed employees he realized that he was transformed—externally at least—into a military officer. He hurried to the division staff. He met there other medical men, some in civilian suits, some in new uniforms. All were finally checked off and after much delay and confusion assigned to different field hospitals. Dr. W. was introduced to his senior surgeon, under whom he would have to serve. He asked for instructions what to do. He was told to leave his address and await orders. He finally learned that his corps would not leave for two months. This gave him an opportunity to attend surgical clinics, to dissect cadavers and thus to acquire some necessary surgical technic; in fact, all who had the opportunity did this, because their special training was entirely ignored in their assignments.

Chief surgeons of field hospitals had these two months for the organization. Not infrequently, at the last moment, they

Digitized by Google

were removed from these assignments to make room for favorites of influential generals, and given other appointments, less responsible and less paying; humiliations which were entirely uncalled for, and which were the unavoidable outcome of a system of favoritism, which has since been recognized as the root of many evils in the Russian fighting machinery in 1904 and 1905.

During the interval between assignment and the actual start the wiser reservists looked into the large sized volumes of military regulations governing the medical department and the army books which treated of their duties and obligations but which at best served to confuse the uninitiated. Not one of these reserve physicians knew anything of the conditions of camp life, of the requirements of modern field sanitation, how to draw or interpret a military map, the customs of war, nor had any of them more than a vague idea what duties were to be performed at the diverse frontal medical aid stations and institutions.

Why did not the seniors, those placed in command of future ambulances, field hospitals, base hospitals, etc., embrace the opportunity of the two months time of preparation to instruct their newly acquired subalterns? The answer is not difficult. But let us wait; let us follow some individual writers of evident ability and of unquestioned loyalty and patriotism, and the answer will be heard from more direct sources.

II. MISHCHENKO'S RAID.

Did space permit, it would not be wasted labor to review the situation at almost the very beginning of the war between Russia and Japan with a view to determining why it was that the Russians evacuated so important a port as Yinkow without a struggle and thus gave the enemy a formidable base of supplies. But it was done for strategic reasons, which I may be too stupid to understand. Be this as it may, much later the famous cavalry general, Mishchenko, was ordered to inflict a serious blow to that "stomach" of the enemy.

I lean on the senior surgeon of the 3rd Siberian Artillery Reserve Division, A. A. Eleonski, who participated in that raid for the data regarding the medical aid rendered the wounded.

Digitized by Google

To appreciate the importance and the magnitude of the enterprise it is essential to pay some attention to the organization of the combatant force and its mission in a greater measure than is hinted at above. After the battles of the Sha River, the cavalry chafed under a prolonged enforced inactivity and greeted with enthusiasm information that at last an opportunity was to be given it to win its laurels. Kuropatkin reviewed the troops and made an inspiring speech.

Mishchenko started from the Chinese village Chentaupu, on the left of the Hun River (south of Mukden)—the extreme Russian right flank. During the time of the stay of his command in that village (1½ months) there was an abundance of warm quarters, good food, baths—in short, all the comforts of well organized and well provided garrison life, and the column had an opportunity to fully recuperate from the fatigues of the series of battles of the Sha River. Though there was no indication of the presence of the Japanese in the valley, it was nevertheless known that in spite of the extremely cold weather the Japanese were busily at work in preparing for coming battles. About a week before the column started, the chief surgeon called together the regimental surgeons and instructed them to take from the medical and surgical supplies whatever they saw fit with the proviso, and this was strongly insisted upon, that "nothing on wheels" must be taken along. Now the regimental surgeons began a series of lively discussions among themselves on the great question of how to transport back their wounded a distance of about 135 American miles. It was finally decided to arrange for 5 horse-litters per company and to depend somewhat on the Red Cross vehicles—General Mishchenko having been assigned a Red Cross section. Now followed a feverish activity for the construction of durable horse-litters, and for obtaining pouches, surgical supplies, linen, bed sacks, etc. Most attention was given to the horse-litters, which had never before been tested out in actual service—not even by the Commander-in-chief of the columns.

Following a jolly Christmas celebration, the command left December 26, 1904 (old calendar), at 6.00 a. m. The command was accompanied by a half-battery of horse-artillery. The first stop for the night was at Ssufangtai, where another column joined. The next morning the now fully organized force, consisting of

Digitized by Google

three columns left the village. The first under Major-General Samsonow, the most western, followed the Liao. It consisted of 3 dragoon regiments, 1½ batteries horse-artillery and a company of frontier-guards (Rogranitza).

The 2nd, centre column, under Major-General Abramow, consisted of 3 Ural regiments, 2 Transbaikal regiments, 1 Cossack battery, 3 mounted hunter-commands, 1 company frontier-guards, a Red Cross detachment, and the staff of the entire force.

The 3rd, most eastern column, which was to hug the railroad under Major-General Teleshew, consisted of 5 regiments, 1 Cossack battery and 1 company frontier-guards.

To this must be added "1,500 pack-transport" with forage for the horses and subsistence of the men. But this transport proved its uselessness the very first day. The mules were not trained, the drivers were undisciplined, so something went wrong every little while, consequently the command was prevented from moving with ordinary speed, as the transport could not be left without protection.

Now came something noteworthy. Kuropatkin had advised the use of horse-drawn wagons on two wheels, the horses to be selected with care. He had written: "These wagons will not fall behind the command and when freed from their loads will constitute your sanitary transport." But Mishchenko did not heed the advice of his superior—at a price, as will be seen, dear enough.

As American regiments of cavalry are not numerically the same as the Russian ones, I will say, parenthetically, that the total number of men in Mishchenko's command was about 7,000, with 28 cannons and 4 siege guns.

Early there were some small captures of stores, and the appearance of flames indicated that the Japanese were burning their stores in anticipation of the approaching Russians. A "preliminary" conflict ensued December 28th at noon while crossing the Hun River. A sub-lieutenant was shot in the abdomen, and died the same day in the care of the Red Cross detachment. Ten Russians were wounded and taken care of by the regimental surgeons. But the very same evening my reporter's regiment had to bear the brunt of an attack in which were killed 2 officers and 10 men while 7 officers and 40 men were wounded.

Digitized by Google

This regiment, which was at the head of the center column, after crossing the river Hun, galloped to the aid of its scouts, who were exchanging shots with Japanese hidden in a strong compound of the village Udsyatai. Protected as the Japanese were even against artillery, the riders became easy prey to their rifles. It is admitted that the colonel acted unwisely and, in fact, the commanding general published an order the next morning directing that similar conflicts be avoided. The encounter began late in the afternoon. Realizing that it meant more than a mere formal exchange of shots, the regimental surgeon selected a roofless and windowless half-destroyed fansa, 400 paces from the enemy and ordered the dressings removed from the saddle-pouches and that the horse-litters be immediately fitted to the mules. Ten minutes later wounded began to appear, mostly with bullet wounds of the extremities. While dressing them and preparing for their removal to the main column, the senior surgeon received an order from the regimental commander to send at once to the very walls of the compound the junior surgeon with ten sanitary soldiers and 5 horse-litters for the purpose of removing the dead and wounded, among the former the body of a French volunteer officer, Beaurteu, who came from Tunis to study the war.

The surgeon realizing the futility of approaching the enemy practically at the very mouths of the rifles and that the Japanese were shooting even at sanitary personnel, pointed out the difficulties and received in reply a typically Russian answer: "I take it, doctor, that one commands and demand of you obedience, because I myself have received an order from the general never to bivouac until all our dead and wounded are removed, and besides, you do not know whether there may be among the wounded such whom you can save, and, as you see the Japanese have diminished their fire." The junior surgeon and the ten soldiers had scarcely gone 100 paces from the fansa when they were halted by the enemy's volleys. They returned without accomplishing anything. Later in the evening, artillery having been obtained, a battery fired from behind the dressing station, though eventually it shifted its position. The surgeon heard the "hurrah" yell of the Cossacks, but it was a yell that froze his heart. It was imme-

Digitized by Google

diately followed by a yell for "litters" naming the officers wounded or killed.

Fifteen minutes later on the frozen kaulyang field, where he and his men stood, lay corpses and wounded brought away from the compound, the latter moaning and praying. It was bitter cold and dark, the wind blew out the lanterns, the surgeon's hands were stiff from the cold and he must expose at least in part the wounds for dressings or for the arrest of hemorrhage. Everybody yelled for aid—he could not reach all in a second. His friend W.— a lieutenant, was shot through the knees and the lung—the latter wound of entrance admitting 5 closed fingers. The patient had a saber wound of the head in addition. He had suffered terrible loss of blood and was asphyxiated. In spite of all the surgeon could do the officer died 15 minutes after arrival at the dressing point. Fortunately the "two-wheelers" from the Red Cross came to his aid, but it was not until 2.00 a. m. that all were collected and the exhausted regiment retired to a nearby village, (Ladjawos), where all had to bivouac under the sky, in spite of a temperature of 15° R.

The real battle, however, occurred December 30th at 5.00 p. m. when the 3½ batteries took a position about two miles from the railroad station and for half an hour shelled the station. The buildings were ignited and burned all night. It was observed that a Japanese train managed to unload an infantry detachment at the station and to hurry out of the zone of fire. As soon as it got dark the chief commanded the artillery to cease firing and to retire to the village Lanssantin, there to concentrate, and during total darkness to attack the station and stores on foot and to dynamite it. The attack, as is well known, proved a fiasco for the Russians, for the latter encountered not only entrenchments, but covered pits and obstacles. There were many wounded, for the Japanese, owing to the fire illumination, soon found the Russian lines. To continue the attack was impossible and it was necessary to get the wounded to some dressing point. Such a one had been established at the village of Tumhaufudse, two miles from the Yinkow station.

I have not at present the details of the work at that station, but it appears that even its limited usefulness was greatly impaired, because the station announced its location by burning wood piles,

Digitized by Google

a method also followed by antagonistic Chinese and by inhabitants of neighboring villages to combat the cold. The wounded naturally were afraid to fall in improper hands. The cold and lack of personnel and material, I learn indirectly, proved the cause of much suffering. A good idea of the situation can be gained from an authentic description of the situation at Lanssantin. At 2.00 a. m. unexpectedly appeared an officer, slightly wounded, who asked the regimental surgeon for attention and announced that more than 200 wounded would arrive at once. The position of the regimental surgeon was deplorable. The village had no houses (fansa) only 5 or 6 "yards." Awakening his sanitary personnel, he started to look for some suitable place to shelter the wounded. Finally finding a fansa he drove out the sleeping Cossacks, and placed a Red Cross lantern in front of the gate. At that very moment the wounded began to arrive. Some on horseback, assisted by uninjured comrades, others on stretchers, but in a steady stream one after another. The fansa was not yet prepared and the wounded were placed in the courtyard. The surgeon realizing the gravity of the situation, ordered a wood fire in the center of the yard which afforded good illumination and then and there began to apply dressings. Meanwhile the number of wounded became larger and larger and they were placed in the fansa, in the courtyard and well away from it. The surgeon for two hours worked alone with his feldscher (hospital steward) but at four the surgeon from the originally fixed dressing point arrived and assisted.

The wounds were of a horrible character. with bones at times shattered, and fragments in the soft parts. Working with ordinary artery forceps, attempts had to be made to catch bleeding vessels and ligate them, in order to arrest profuse hemorrhages. I cite one case to show that mere first-aid dressings are not always sufficient even at the foremost dressing stations. A soldier had a wound of the palm of the left hand. On removal of the tourniquet the blood flowed from the wound like from a fountain. It was plain that the vessels of the palmar arch had been injured. The wound was rhomboid in shape with regular diagonals. The soldier denied a sword wound but says he was shot. The surgeon simply could not—and since the war has not—understand how such a wound can be produced by a bullet, but began to be-

Digitized by Google

lieve that the Japanese used explosive missiles. The surgeon attempted to apply hemostats but, though several were applied, could not arrest the hemorrhage. Of course, ligature of the artery above the wound should have been done, but the dirt all around made such a step unwise, even if the surgeon had the free use of hands, and his fingers were then stiffened from the cold. Finally, assisted by a comrade, he managed to enlarge the wound and to locate and ligate the bleeding artery in the depth of the wound.

Towards morning the order came to place all the wounded—the dead having been buried—on stretchers and Chinese carts and to start back, so as not to hamper the column, for the commanding general had received disquieting reports of a planned advance by the enemy. The number of stretchers was extremely limited and Chinese carts fewer still. Now began a search for carts, overcoats and blankets. Anything of that character was taken from the Chinese wherever found.

Under such horrible conditions the retreat began. The sufferings of the gravely wounded on the carts defies description. Many begged the surgeon to shoot or poison them. After short halts for rest the men begged to be let alone since death by the enemy was preferable to the jarring on the carts. Morphine and opium were given freely—but to no purpose. Under such circumstances with a transport of over 350 wounded it was absolutely necessary to avoid contact with the enemy, this necessitated crossing to the right border of the river Liao, as quickly as possible, as all other crossings were covered by the artillery and other detachments of the Japanese.

The passage was accomplished December 31, the wounded transport in an attempt to keep pace with the command, often left the roads and crossed kaulyang fields. The passage at midnight—truly an unpleasant manner of ushering in the new year—was not without dangers and difficulties owing to the unreliability of the ice. Some animals were drowned and some wagons were lost. At last the tired troops reached the villages Dunhan and Ssanchahe, to rest. But there was no rest for the medical personnel. It was necessary to force the peacefully sleeping Chinese from their fansas, to remove the wounded from stretchers and wagons, to place them in the houses, and to feed and

Digitized by Google

dress them. The patients were too exhausted to care about their dressings and they begged to be let alone. But the real lamentations began at 5.00 a. m., when it was necessary to remove the wounded back to the transport in order to be ready to accompany the command scheduled to march at 7-8 a. m. It would lead only to sad repetitions to describe the rest of the march according to stages, suffice it to say that January 3rd the transport was turned over to another command in the village "Tamjeupuz," whence from the wounded were quickly distributed among the hospitals, where many died from complications.

January 4th the column of General Mishchenko reached Sisifoutaj for a rest, determined not to be prolonged. Total losses: Killed, 7 officers and 70 men; wounded, 33 officers and 252 men; suffering from contusions, 21; lost, unaccounted for, 35—total, 418 officers and men.

Far be it from me, a humble civil surgeon, to criticise so prominent a cavalry leader as General Mishchenko is reputed to be, in military matters. But, even at the risk of being sneered at, I cannot help but ask: why was General Kuropatkin's suggestion so ruthlessly ignored? In a personal letter from an observer who is recognized as an authority, the statement is made: "The failure of the raid was largely due to failure to supply adequate transport for wounded. This resulted in the use of Chinese carts which delayed movement so much that whatever chance there might have been was destroyed." In my opinion this statement cannot be assailed.

Line officers, as a rule, do not accept the medical corps as actually part and parcel of combatant forces and as a branch of the service without which no great victories can be won. I think the failure of Mishchenko to pay close attention to his medical needs and the unpreparedness of the chief surgeon to impress on his commander the need of good transport, food, bedding, dressings, stimulants, etc., for a contingency that should have been foreseen speaks volumes for a harmonious entente between line and medical staff.

Much as we are criticised for our "red tape," the Russian officer goes us one better—the paper work is to him the *sine qua non* of his official existence.

Digitized by Google

In the Manchurian Army, as indeed even now in Russia itself, the supreme direction of the sanitary service lies in the hands of non-medical officers of high rank. Just at present the Russian press, secular as well as professional, is full of protests against this antiquated system, but there seems no likelihood of an early change, as the gentlemen filling the diverse sanitary offices at headquarters are more than unwilling to abandon their lucrative posts.

An idea in what manner medical officers were ignored can be had from an appendix, to order number 130, dated November 13, 1904, isued from the office of the commander-in-chief:

PERSONNEL OF THE CHIEF OF THE SANITARY SERVICE, ATTACHED TO THE SUPREME COMMAND OF THE ARMY.

Supreme chief of the sanitary service (lieutenant-general).
General for carrying out commissions (major-general).
Chief of hospital administration (may be physician).
Chief of evacuation department (may be physician).
For commissions: 2 staff officers, 3 physicians.
Sanitary-statistical bureau: chief; colonel, or major-general (may be physician).
Assistants: 2 physicians.
Office of the supreme medico-military inspector:
Supreme medico-military inspector.
1 superior field surgeon.
1 chancellery director (physician).
For commissions: 2 physicians of the 3rd medical class.
2 of the 4th class.
Supreme field evacuation commission of the army:
Presiding officer of the commission, major-general (may be colonel).
Assistant to the presiding officer.
Superior physician of the commission. For commissions:
officers, 6; physicians, 10.

*I need only remind the reader that the chief medical posts of the Japanese Army were in the hands of famous medico-military specialists.

What was the result of such divided responsibility in the Russian Army? Although it cannot be denied that the higher Rus-

Digitized by Google

sian officers fully realized the military value of a good sanitary service, the result of placing the supreme direction of sanitary matters in the hands of men who had had experience only as line officers, governors, or chiefs of police, was chaos.

It is no easy matter to make a selection from the Russian literary material on hand, but if I am allowed to follow briefly a few phases of one so-called divisional field hospital, I think there will be no doubt left in the minds of the readers, that in the absence of proper centralization of direction, thousands and thousands of wounded were left without medical assistance, while medical field units were idle.

Much has been said about the splendid achievements of the Russian Red Cross; indeed, at first, it was the Red Cross personnel that did most of the work but I cannot refrain from thinking that had there been proper management the Red Cross would have been able to take its proper place in the rear organizations from the very beginning.

But let us follow the field hospital (5 medical officers, priest, administrator [a line officer], 4 lay-nurses, and an uncertain number of sanitary soldiers and line soldiers), with a capacity of 200 beds (on paper).

This unit arrived at Mukden late in the fall of 1904 detrained in hurry, and without allowing the under-personnel to eat, although they had not had food for over 24 hours, was ordered to pack its equipment on its wagons and follow a staff officer, some miles southwest of Mukden. When two miles had been passed, the line officer of the other divisional field hospital (each division having two such mobile field hospitals) appeared on the road and told the commanding officer to return to Mukden—by order of the senior adjutant of the division staff. A halt was ordered and the conducting staff officer and the line officer attached to the hospital galloped to the staff. The line officer (the administrator) returned alone, confirmed the order, but the chief medical officer decided to remain in loco and ordered the administrator to inquire at the field medical inspector at Mukden. The officer raced to the city and returned with the news that the field medical officer "knows nothing about it." The tired men were ordered back to the Mukden railroad station and prepared for a night's encampment.

Digitized by Google

Late in the evening it was learned that the unit was to establish itself in two brick barracks, in the neighborhood of the station, then occupied by the field hospital of another division. The physicians visited their predecessors and learned that the field hospital they were to replace had been established just four days. In addition to the regular medical officers, they met three "outside" physicians, ordered from Harbin "at the disposal of the field-lazaret medical inspector." The original order, which reached these men, actively engaged in "collection hospitals" read that they were needed for only four or five days and should take no personal baggage except underwear for one change. During the month in Mukden these offices had seen four changes of field hospitals.

The next day the change took place. The old hospital ordered two miles behind the town removed all its material, even the mattresses and pillows, allowing the patients to remain on the empty cots. Finally the change was completed, and the physicians were hurried as their new duties consisted of the immediate transfer of all patients to the sanitary train.

The train did not leave until 6.00 p. m., but the patients were ordered to be at the station at 1.00 p. m.

The reserve physicians now learned that they could keep only those patients which were expected to get well in one or two days—the rest must be evacuated. They were shown how to fill in the accompanying blanks, such as name, rank, corps, and diagnosis. They were also cautioned—informally, of course,—that the commission frowned upon "careless" diagnosis. For inasmuch as the "sanitary condition of the army was excellent" there was no dysentery—but enterocolitis, no typhoid—but influenza.

Just before the battle of the Sha River, the hospital was ordered south to the village Sachotas. The hospital was overfull—dysenteries sleeping even on the floor. The sick could not be evacuated because the palatial train of the Namjestink had stopped all transportation. Divisional field hospitals to replace the departing ones had not yet arrived. The younger physicians refused to obey the order of the corps commander to abandon their patients. Two days later the new field hospital came, the

Digitized by Google

change of material and personnel was effected, and the new position was taken.

The chief of the field hospital—an active medical officer of advanced years—unwilling to pay for a guide, lost his way, refused to listen to his younger officers, who watched the movement by their compasses, returned to Mukden, and finally got line officers to show him the way. For skill in map reading, truly a sad example! Meanwhile the battle was raging, and the physicians felt humiliated at their uselessness. Finally they reached the division train at Sachotas. The train commander handed the chief physician a new order—to proceed to the village Sujatun. This village was reached in the evening and the unit encamped on the east side of the railroad embankment. The next day a new order instructed the hospital to cross the railway and to establish itself in the village Kiajo-Ki-Shinpa, half a verst (a little over a quarter of a mile) from the railroad station.

Three days passed. The battle was raging all along the front, but no order to unpack was received. Surgical instruments, dressings and appliances were still in the wagons. This held good also for the other divisional hospital, placed in the same village.

Finally, on September 29th, an order came at once to proceed south to the railroad station Shaho. On the way south another corps order ordered the two field hospitals back to Suchiatun (in reality the field hospitals would have been, by regulations, too close to the firing line, if permitted to remain at Shaho). Again several days elapsed but no order to unpack came. In the neighboring stations there were several other field lazarets still unpacked.

At last the order to unpack came October 1st. Three large tents, an operating tent and a pharmacy were pitched. Patients began to arrive on the evening of October 2nd on uncovered two-wheelers, without springs—cold rain pouring on the wounded, who trembled from cold and concussion. Many dressings were applied and two amputations were performed. Officers and men worked with tremendous zeal during the entire night.

The next day an order came to evacuate all wounded by railroad. There were patients with perforating abdominal wounds and compound fractures. These men needed rest but the order

Digitized by Google

left no alternative. Evacuation is a military necessity. War is not an event in the interest of the wounded—but, it seems to me, that the senseless moving, halting and removing of gravely wounded defenders of the flag, is unnecessary, and that even in war cold regulations should be so formulated to include opportunity for the exercise of ordinary humanitarian instincts.

A few weeks later a new order came to proceed a little over a mile west to Peitaitzu. It seems that the staff officers who were very friendly with the chief surgeon and his nurses (who often visited and were visited by the corps commander) wanted that special hospital near headquarters. Scarcely established but the "unfavored" hospital was ordered to Sujatun (Suchiatun?). Five days after arrival the orders to unpack were received. There came few wounded, more sick.

Towards the end of October the unit was ordered into the village Mizantun—eight versts east. They left the houses of the patients, and the dugouts of the soldiers. It was now too cold for tents and again the soldiers built dugouts while the fansas were prepared for officers and patients. Suddenly a new order was received to move to West Chengou, four versts northwest. The men became irritable and nearly refused to work.

To this hospital only sick were sent. The physicians did not know whether to evacuate the patients or not. The chief surgeon of the corps came and censured the physicians for evacuating the sick. He asked them: "You have physicians, nurses, a pharmacy; why do you make a point of étape out of your lazaret? But the chief of the sanitary service, General Trepoff, on learning that patients were retained five or six days, flew into a rage.

At the close of November an order to move to a village near Mukden forced the hospital to evacuate all patients. Before Christmas (Russian Calendar) the division hospital was ordered three miles south of Chengou, close to the battle line. Contrary to law an order came ordering the chief surgeons to the front. Later they received orders for "special brave service on the firing line."

The battle of Sandepu lasting through the end of January and causing enormous losses was at end, but the hospital was not active. All the physicians learned was that the wounded dragged themselves for miles in search of help. There were not enough litters nor personnel. Before the battle of Mukden the two lazarets were ordered behind the famous Putiloff trenches. There

Digitized by Google

was some work during the engagement, but the satisfaction of it was destroyed because orders from above forced the personnel, in spite of their pleadings, to evacuate by wagon to the railroad patients with abdominal and other serious injuries calling for a few days' rest to prevent destruction of life.

February 19th an order came to accept no more wounded, to clear the lazaret, to pack everything and to be prepared to move at the very first hint. At 2.00 a. m. a telegram ordered removal to Hemhapu, about five miles northwest, fifteen minutes later a counter order was telegraphed from the corps staff to remain for the night.

From Hemhapu an order forced the two lazarets to cross the Hun River and to await further orders, and next the order came to proceed to Palipu, east of Mukden. The lazaret did not find the village on the map furnished them (see sheet 7, map accompanying official reports by American observers) and wandered around until night. The personnel reached the village the next morning.

After two days with the battle raging behind and in a semicircle south of Mukden, transports of wounded arrived from Suchiatun—fifteen miles south—asking for aid, but as no order to unpack was given no aid could be rendered. Columns of infantry, cavalry and sappers passed the village on a northward march. The officers always inquired where the staff of the corps was. No one knew. The lazaret did not know whether to go along or remain. February 24th the battle seemed to be in very close proximity. No doubt thousands lost life and limb, but the lazaret stood idle, unpacked, useless. Finally in the evening a soldier left in a neighboring village as a courier brought an order from General Putiloff to proceed north to Houling without delay. The rest is without interest, as everything was in flight—chaos reigning supreme.

I prefer to conclude this section without comment. The officer (junior medical) from whose diary the above data have been obtained concluded with the insignificant remark that as the hospital was more of something "field movable" than "field mobile hospital" the government would have saved all the great sums its maintenance had cost without producing an appreciable damage by never having ordered its organization.

Digitized by Google

CONSTITUTION AND BY-LAWS OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.*

PREAMBLE.

The Medical Officers of the Army, of the Navy, of the Public Health and Marine-Hospital Service of the United States, and of the Organized Militia of the Different States, under the provisions of an act of Congress approved January 30, 1903, have associated themselves together under the name of "The Association of Military Surgeons of the United States." Now, therefore, pursuant to the laws of the United States, the members of said Association do hereby ordain and enact the following:

CONSTITUTION.

ARTICLE I.

NAME.

The Association shall be known as "The Association of Military Surgeons of the United States."

ARTICLE II.

OBJECT.

The object of the Association shall be to increase the efficiency of the medical services of the Army, the Navy, the Public Health and Marine-Hospital Service, and of the Organized Militia of the different States by mutual association and the consideration of matters pertaining to the medico-military service of the United States both in peace and in war.

ARTICLE III.

MEMBERS.

Classification of Membership.

SECTION 1. There shall be Active, Life, Associate, Ex-Officio, and Honorary members.

*Adopted September 26, 1911.

Digitized by Google

Members Eligible to Office and Entitled to Vote.

SEC. 2. Active and Life members only are eligible to office or entitled to vote.

Active Members.

SEC. 3. Active membership is limited to commissioned medical officers of:

(1) The United States Army;

(2) The United States Navy;

(3) The United States Public Health and Marine-Hospital Service;

(4) The Organized Militia of the several States;

(5) The United States Volunteers.

Active members may retain their membership, should they be honorably discharged from the service in which they have been commissioned, and nothing in this Article shall affect the membership rights of Contract or Acting Assistant Surgeons of the United States Army, Navy or Public Health and Marine-Hospital Service who were duly elected prior to the adoption of this Constitution.

Life Members.

SEC. 4. Life membership and exemption from payment of annual dues is conferred upon—

1. Members who obtain first honorable mention in the prize competitions of the Association.

2. Any active member upon the payment of fifty dollars at one time.

3. Ex-presidents of the Association.

Associate Members.

SEC. 5. Associate membership is open to—

1. Ex-medical officers and

2. Other officers of the aforementioned services,

3. Ex-medical officers of the Confederate Army and Navy, and

4. Medical officers of foreign services.

Digitized by Google

Ex-Officio Members.

SEC. 6. The Secretary of the Treasury, the Secretary of War, the Secretary of the Navy, the Surgeon General of the Army, the Surgeon General of the Navy, the Surgeon General of the Public Health and Marine-Hospital Service, in conformity with the Act under which this Constitution is adopted, shall be ex-officio members of the Association.

Honorary Members.

SEC. 7. The President of the United States, the senior General officer of the Army, and the senior flag officer of the Navy for the time being, shall be honorary members. Other persons who have rendered distinguished service to the Association, or who have otherwise attained distinction deserving of recognition by the Association, are eligible to honorary membership.

ARTICLE IV.

GOVERNMENT OF THE ASSOCIATION.

Advisory Board.

SECTION 1. There shall be an Advisory Board consisting of the Secretary of the Treasury, the Secretary of War, the Secretary of the Navy, the Surgeon General of the Army, the Surgeon General of the Navy, the Surgeon General of the Public Health and Marine-Hospital Service and the President of the Association.

SEC. 2. The officers shall be a President and three Vice-Presidents, who shall be elected from and represent in regular rotation the Army, the Navy, the Public Health and Marine-Hospital Service, and the Organized Militia; a Secretary and a Treasurer; all of which officers shall hold their respective offices until their successors are elected and qualified.

Excutive Council.

SEC. 3. There shall be an Executive Council, to consist of the officers and six (6) members, who shall be appointed by the President each year.

Digitized by Google

Committees.

SEC. 4. There shall be the following committees, to be appointed annually by the President, except as hereinafter specified.

A Literary Committee, to consist of seven (7) members—four (4) members from the Organized Militia and one (1) each from the Army, Navy, and the Public Health and Marine-Hospital Service.

A Publication Committee, to consist of four (4) members, one of whom shall be the Secretary as ex-officio chairman.

A Necrology Committee, to consist of four (4) members.

A Committee of Arrangements for the next ensuing meeting, to consist of one (1) member, who shall be the chairman, with power to associate with himself such other persons, members of the Association or not, as he may see fit.

A Nominating Committee, based upon a representative or one vote for each State, Territory, the Army, the Navy, and the Public Health and Marine-Hospital Service, and for every additional ten (10) members or major fraction thereof an extra representative or vote; said vote or votes to be cast by a member or members, present from each State, Territory, Army, Navy, and Public Health and Marine-Hospital Service, to be designated by the members present from each State, Territory, Army, Navy and Public Health and Marine-Hospital Service at the time of meeting.

Boards of Award.

SEC. 5. Boards of Award shall be appointed by the President for the consideration of such prize competitions as may from time to time be instituted by the Association. Membership in the Association shall not be required of members of the Boards of Award, which shall be selected in each instance from men conspicuous for knowledge of the subject of the competition.

ARTICLE V.

SEALS, INSIGNIA AND ARMS.

Seal.

SECTION 1. The seal of the Association shall consist of a circle, one and three-eighths (1⅜) inches in diameter, charged with the

Digitized by Google

cross of the insignia with the words, "Organized 1891, Incorporated by Congress 1903," within a circumferential band bearing the words, "Association of Military Surgeons, United States."

Insignia.

SEC. 2. The insignia of the Association shall comprise (1) a Cross; (2) a Button.

(1) The Cross shall be of gold, the obverse enameled with red and bordered with gold, upon which shall be superimposed a white shield, inclosing a shield of the United States in its proper colors—red, white and blue with stars of gold—surrounded by the motto, "Omnia pro Patriæ Caritate;" the reverse, plain gold and bearing its number. Upon the reverse may also be engraved the name and address of the owner. The cross, suspended by a ribbon, consisting of two bands of crimson inclosing a band of white, may be worn by any member of the Association on ceremonial occasions, and shall be carried on the left breast—or at the collar, if the wearer be an officer of the Association.

The Button.

(2) The Button shall consist of a red enameled cross outlined in gold, upon a field of white enamel surrounded by a blue band, three-fourths (¾) of an inch in diameter, outlined on either side by circles of gold, and bearing the legend also in gold, "Omnia pro Patriæ Caritate." It may be worn by all members at their discretion in the upper left-hand button-hole of the civilian coat.

The Coat of Arms.

SEC. 3. The Coat of Arms shall be as follows: Quarterly. First: Sanguine, a caduceus or; for Army. Second. Or, an oak leaf and acorn proper; for Navy. Third. Argent, a caduceus and an anchor in saltier azure; for Public Health and Marine-Hospital Service. Fourth. Azure and argent, the Union as borne on the American Flag; for the Organized Militia.

Surcharge—The Badge of the Association, proper.

Crest—An Eagle displayed, proper, bearing on breast a Geneva Cross.

Digitized by Google

ARTICLE VI.

QUORUM.

Thirty-five (35) members shall constitute a quorum for the transaction of business, but a less number may adjourn.

ARTICLE VII.

AMENDMENTS.

All amendments to this Constitution shall be proposed in writing at one annual meeting and voted on at the next. A three-fourths vote of all the members present at the annual meeting shall be necessary for adoption.

BY-LAWS.

ARTICLE I.

ELECTION TO MEMBERSHIP.

Active or Associate Membership.

SECTION 1. Election to active or associate membership shall be by the Executive Council, to whom the Secretary shall refer all applications, together with such credentials as may be presented.

Honorary Membership.

SEC. 2. Election to honorary membership shall be by a two-thirds vote of the Association, after the unanimous recommendation of the Executive Council.

ARTICLE II.

Expulsion from Membership.

Any member who may be dismissed from the service for conduct unbecoming an officer and a gentleman shall be expelled and debarred from any further rights or privileges when proper proof has been furnished.

ARTICLE III.

Meetings.

The Association shall meet annually, the time and place to be fixed at each meeting for the one ensuing. Special meetings may

Digitized by Google

be called by the President at any time. At the annual meeting the President, Vice-Presidents and Treasurer shall be elected for the term of one year, the Executive Council and standing committees appointed, and the annual reports received.

ARTICLE IV.

DUES AND FEES.

Admission Fee.

SECTION 1. The admission fee to be paid by active and associate members shall be five dollars ($5.00), which shall accompany the application for membership.

Annual Dues.

SEC. 2. The annual dues shall be two dollars ($2.00), due on the first of January of each year. No annual dues shall be required of new members for the remaining portion of the calendar year in which their admission fees have been paid. Delinquency for two years shall terminate membership, after due notice by the Secretary-Treasurer.

Members Exempt from Dues.

SEC. 3. Honorary, Ex-Officio, and Life Members shall be exempt from the payment of dues.

Official Journal.

SEC. 4. The annual subscription to the official journal by members of the Association shall be two dollars ($2.00).

ARTICLE V.

DUTIES OF THE ADVISORY BOARD.

The Advisory Board shall meet at such times as the interests of the public service may demand. Meetings may be called by one or more members of the Board and three members shall constitute a quorum. Any action taken by the Board shall be reported to the Association through the President of the Association.

Digitized by Google

ARTICLE VI.

DUTIES OF OFFICERS.

The President.

SECTION 1. The President shall preside at all meetings, appoint all committees, unless otherwise provided for, approve all proper bills, and perform such other duties as are usually incumbent upon such an officer.

The Vice-Presidents.

SEC. 2. The Vice-Presidents in order of seniority shall perform the duties of President in the absence or inability of that officer.

The Secretary.

SEC. 3. The Secretary shall keep the records and archives of the Association; receive all applications for membership and refer them to the Executive Council; notify the Treasurer of the election of active and associate members; issue certificates of membership to active, associate, and honorary members on election, and to life members when advised by the Treasurer that the necessary fee has been paid; and shall hold office until his tenure is terminated by resignation or death, or by the election of his successor after due and timely notice.

He shall be a member and ex-officio chairman of the Publication Committee.

He shall appoint an Assistant Secretary each year, and shall present an annual report.

The Treasurer.

SEC. 4. The Treasurer shall receive all moneys due the Association, collect all assessments, and pay all bills which have been properly approved.

The accounts of the Treasurer shall be audited by a committee appointed for that purpose on or before the annual meeting. He shall present an annual report.

Digitized by Google

He shall execute such bond of $2,000 as may be approved by the Executive Council for the faithful performance of his duties, the Association to bear the cost of this insurance.

ARTICLE VII.

THE EXECUTIVE COUNCIL.

Duties.

SECTION 1. The Executive Council shall be charged with the conduct of the affairs of the Association during the intervals between the annual meetings, shall elect active and associate members, and perform such other duties as may be assigned to it by the Constitution and By-Laws or by vote of the Association at any stated or special meeting.

Conduct of Business.

SEC. 2. The business of the Executive Council may be conducted by correspondence or at such meetings as may be called by the chairman upon his own initiative or at the request of any three members.

Officers.

SEC. 3. The President and the Secretary of the Association, respectively, shall be ex-officio chairman and secretary of the Executive Council.

Quorum.

SEC. 4. Five members of the Executive Council shall constitute a quorum for the transaction of business.

ARTICLE VIII.

DUTIES OF COMMITTEES.

SECTION 1. The Literary Committee shall outline the literary work for the annual meeting in advance, making the necessary arrangements for the reading and discussion of papers.

Digitized by Google

The Chairman shall be responsible for the program for the ensuing meeting.

The Committee shall assist the Publication Committee in the prompt publication of the Proceedings.

The Publication Committee.

SEC. 2. The Publication Committee shall have charge of the publications of the Association.

It shall determine what portions of the proceedings are of sufficient general interest to be printed and decide upon the advisability of publishing the several papers presented at the annual meetings, and such other matter as may be of value to the Association.

It shall prepare for publication, contract for printing and see through the press all the publications of the Association; but all contracts for printing must first have the approval of the President and the Treasurer.

The Necrology Committee.

SEC. 3. The Necrology Committee shall report to the Association, at each annual meeting, the deaths that have occurred during the preceding year among the members of the Association, with a suitable memoir in each case.

The Committee of Arrangements.

SEC. 4. The Committee of Arrangements shall have charge of all local arrangements for the annual meetings of the Association.

The Nominating Committee.

SEC. 5. The Nominating Committee shall, at the annual meeting, present a list of candidates for the various offices for the ensuing year.

The vote or votes of the Nominating Committee shall be cast by a member or members present from each State or Territory, the Army, the Navy, and the Public Health and Marine-Hospital Service.

Digitized by Google

ARTICLE IX.

DUTIES OF BOARDS OF AWARD.

Boards of Award shall be charged with the selection of the person or persons to whom prizes shall be awarded, in accordance with the regulations of such prize competitions as may, from time to time, be instituted, and shall report the results thereof at such time as may be designated by the Association.

Digitized by Google

SOME REMARKS ON SALVARSAN, WITH DESCRIPTION OF APPARATUS FOR INTRAVENOUS ADMINISTRATION.

By Major ROBERT U. PATTERSON, Medical Corps, U. S. Army.

WHEN the current journals are being literally flooded with articles dealing with arsenobenzol and its use, there seems little excuse to add more, unless one can offer something new, or accomplish some good object. While nothing original is presented in this article, it is thought that citations from the literature, and the description of apparatus may be of interest to others.

My own experience with the use of Salvarsan began in January, 1911, and since that date I have by no means confined my observations to this small garrison (Fort Banks), but have availed myself of every opportunity to see the results obtained, and the methods of administration at other places, viz., the Base Hospital, Maneuver Division, San Antonio, Texas, at the U. S. Naval Hospital, Chelsea, Mass., and in civil hospitals in the City of Boston.

THE PREPARATION OF THE DRUG FOR INTRAVENOUS INJECTION.

Ehrlich in a personal interview with Sutton (1), stated that he believed the ill effects after intravenous injection were due to dead bacteria in the water used for making the solutions, and hence recommended the use of distilled water only. Out of 400 doses of Salvarsan used by Fordyce (2) he found three of them punctured, and therefore advised immersing the ampoules in alcohol before using. This is a good practical point, serving to show that the tube is intact, that the drug has not been exposed to the air permitting oxidation, and at the same time sterilizing the outside of the ampoule before opening. The file should be treated in the same way.

Wechselmann (3) showed that the saline solution used in making the intravenous injection should be sterilized (boiled or autoclaved) just before using. Swift and Ellis (4) use freshly distilled water for dissolving their Salvarsan, and dilute it up

Digitized by Google

to the desired amount with sterile normal saline solution, which is made with freshly distilled water, previously autoclaved. Since using this method of preparation they have had no nausea, vomiting, headache, or febrile reaction in any of their cases, after intravenous injection. Lambert (5) and others, in common with the discoverer of the drug, advocate the preparation of the Salvarsan solution immediately before use, irrespective of the method of administration to be employed.

Slusher and Burchell (6) have shown that Salvarsan is not germicidal to pyogenic organisms. Boehm (7) of Saint Louis has carried out some careful experiments tending to show the effect on human blood of alkaline solutions of Salvarsan, made with distilled water only, and made with saline solution. It is inadvisable to quote these experiments at length, but he found that when Salvarsan solution was made with distilled water only it produced laking and haemolysis, and that the larger the quantity of Salvarsan the more rapidly this result occurred. Using Salvarsan solution diluted in normal saline solution, there was no laking or haemolysis. In other words, Salvarsan in distilled water and 15% sodium hydrate solution is not isotonic, while Salvarsan neutralized in the same way, and using normal saline solution as a diluent, is isotonic. In one case that he treated, and in which he used an alkaline solution of Salvarsan diluted with distilled water only, there was profound shock, cyanosis, and icterus, which nearly resulted fatally. Blood withdrawn in this case showed marked laking. This is due to the difference in the osmotic pressure of the blood, and the solution made as indicated above. In over 200 intravenous injections, he has found all untoward symptoms greatly lessened since using isotonic or physiological saline solution as a diluent.

Von Notthaft (8) has reported a case in which there was collapse following the intravenous injection of a solution that had not been rendered completely alkaline. Fraenkel and Grouven (9) report a fatality from using an acid solution, i. e., a solution of Salvarsan dissolved in hot water, without the addition of sodium hydrate. Herring (10) demonstrated that in animals, alkaline solutions could be injected intravenously with impunity, but that acid solutions were fatal. MacKee (11) states that Meissner has confirmed Herring's findings. In experiments of

Digitized by Google

his own, MacKee has demonstrated the fact that no matter how slowly injected into a vein, acid Salvarsan solutions produce an immediate coarse precipitate, if concentrated. The precipitate is carried to the heart and lungs producing death from blocking of the heart, or pulmonary embolism. There is also some dilatation of the heart and a distinct fall in the blood pressure when acid solutions are used. Using dilute acid solutions, it is found that they can be given with safety, but that many more unpleasant phenomena occur, than after using an alkaline solution. He believes that concentrated acid solutions will surely cause death. While weak acid solutions can be given safely, they have absolutely no advantage over alkaline solutions, except that in the rare event of fluid escaping from the vein into the tissues, during injection, there will be no sloughing with the acid solutions.

PREPARATION FOR INTRAMUSCULAR INJECTION.

Alt and Lesser prepare the drug for intramuscular injection in the following manner. To the contents of an ampoule add 6-c. c., of distilled water, and then 3-c. c., of 4% sodium hydrate solution. Add drop by drop the latter until the solution is clear, then distilled water enough to bring the solution up to 10-c. c., and inject.

At the Massachusetts General Hospital the solution is made in a mortar. 3-c. c. of hot distilled water are put in, the drug added and rubbed vigorously with a pestle till a smooth solution results. To this is added, 1-c. c. at a time, up to 4½-c. c. of 4% sodium hydrate. Sometimes it is necessary to add a little less or a little more of the alkali, but there must be a clear solution. This is diluted up to 16-c. c., with distilled water, and 8-c. c., are injected into each buttock. With this latter method I have never seen a bad result, and some cases had surprisingly little soreness. Corbus (12) prepares the intramuscular solution using a 2% NaOH. He thinks this better than using stronger alkaline solutions, as there is less danger of adding excess of alkali with the strength he uses. He considers the alkali to be the greatest factor in the production of post-injection tumefaction and necrosis.

Burke (13) used an oily suspension, i. e., olive oil with 10% of lanoline. He places 2-c. c. of the oil in a mortar, adds the drug, triturates thoroughly, and draws the triturate up into a suitable syringe. One more c. c. of the oil is added to the mortar

Digitized by Google

and rubbed to get what remains of the drug sticking to the sides, and is also drawn up into the syringe. This involves injecting only 3-c. c of an oily suspension, and gives less mechanical displacement to the tissues than by other methods. His results have been excellent. Hart (14) suspends the drug in the same manner, using iodopin.

CHOICE OF METHOD OF ADMINISTRATION.

My personal view is, that in the military service there is little doubt that the intravenous method is much preferable for routine use, but that the intramuscular injection should not be entirely abandoned. When the drug is used intramuscularly the injection should be made in the gluteal region, at the junction of the middle and outer third of a line drawn from the tuberosity of the ischium to the anterior superior spine on each side. This is based on my own observation and practical experience, and some of the following authorities, for and against intramuscular injection.

Jones (15) believes that intramuscular injection into the erector spinae muscles should never be used because it is so painful; that the intravenous method is not easy for the general practitioner; and that cases recur more frequently after intravenous than after intramuscular exhibition of the drug. Meltzer (16) advocates injecting into the sacro-spinalis on either side; states that the pain is insignificant; and that working with Auer they proved to their satisfaction that the results were better injecting in the lumbo-sacral region than intragluteally. Cabot (17) thinks the intramuscular method safer and better, for the general practitioner. Pollitzer (18) considers that while the intravenous is fine for the patient, and reaches the entire system through the blood stream, still the drug is more rapidly eliminated than by the intramuscular method, and that it may not reach treponemata enclosed in dense fibrous tissue or syphilomata. He therefore believes in following up an intravenous with an intramuscular injection. Kromayer (19) has demonstrated that Salvarsan appears in the urine as quickly after intramuscular as by other methods. Bornstein (20) proved that Salvarsan is carried to the liver, spleen, and kidneys, and there stored up, to be reabsorbed later irrespective of the method of administration. Sutton (21)

Digitized by Google

says "The intramuscular method, although slightly painful, is, in my opinion, the safest and, consequently, the best." Corbus (22) believes that the intravenous is inferior to the intramuscular method of Alt and Lesser, because of the rapid elimination of arsenic with the former. He thinks intravenous injection is distinctly indicated in primary syphilis, but that the older the case the greater the necessity for intramuscular exhibition of the drug. McKenna (23) advises an intramuscular first, and then if the Wassermann reaction is still positive, the use of an intravenous dose.

Schamberg (24) says that nearly all the eye and ear complications have followed intramuscular dosage, and very few after intravenous. Out of 8,000 cases treated, Ehrlich had no blindness, and only 9 cases of auditory disturbances in 7,000 cases. Schreiber of Magdeburg in a large series of cases had only four recurrences affecting the eye and ear after intravenous injection, but many when he used intramuscular only. Those who use large doses get fewer eye and ear lesions, or other nerve disturbances. In my own experience two cases developed iritis within six weeks of intramuscular treatment. Reasoner (25) does not believe that either method should be used to the exclusion of the other. Fox and Trimble (26) conclude that the intravenous and intramuscular methods are of equal efficacy. Fordyce (27) says "In my opinion intramuscular injections bring about as quick resolutions of the lesions as the intravenous method." He now uses an intravenous injection, following it up one week later with an oily suspension of the drug intramuscularly. Fox and Trimble (28) opine that an oily suspension when injected is well borne as a rule, especially when followed by immediate and vigorous massage. Their routine treatment is an intravenous dose followed four days later by an intramuscular. Burke's (29) ideas have already been referred to. Pollitzer (30) has a special method of making an oily suspension in iodopin, so that 1-c c. contains .4-gms. of Salvarsan.

SHOULD MERCURY BE USED?

The opinion of the Surgeon General of the Army (31), as to the continued use of mercury is emphatically affirmative, as evidenced by Circular 3, S. G. O., Washington, D. C., June 3rd,

Digitized by Google

1911. Pusey (32) thinks of Salvarsan that it is "Likely to prove a useful remedy in syphilis, with mercury, however, as before, our chief dependence." Ormsby (33) believes in hydrargyrum to complete the eradication of the disease, and that in the light of our present knowledge, Salvarsan will never replace mercury, but will remain a potent aid.

Geraghty and Keidel (34) recommend one injection of Salvarsan, then 6 months of mercurial treatment, followed by another dose of Salvarsan. McKenna (35), Lambert (36), Trimble (37), Corbus (38), Ballenger and Elder (39), and Fordyce (40) all believe in the continued use of mercury, in conjunction with Salvarsan.

Practically all clinicians are agreed that the so-called "neuro-recidiv," particularly those effecting the eye and ear, are due to the disease alone, and have nothing to do with the Salvarsan, which frequently cures or benefits these conditions. It is noted that most of these complications occur comparatively early in the disease. According to West, 5% of all syphilitics have labyrinthine disease in the first 5 to 12 months. Among the large number holding these views may be mentioned Cunningham (41) and Schamberg (42). Rosenbaum (43) states that Salvarsan has no effect on the healthy eye, and is very efficient in treatment of lesions of the uveal tract. Pollitzer (44) feels that all clinical evidence goes to show that the fear of harm by Salvarsan in eye and ear conditions is unfounded. Iritis is cured by Salvarsan but it is likely to recur. In my own experience I have seen the recurrence of iritis after its apparent cure by Salvarsan. This is certainly evidence that the trouble is due to the disease and not to "606."

There is practically no difference of opinion, among the best authorities as to the necessity for repeating the dose of Salvarsan, in certain cases, very many times. Until recently practically all contributors to the literature have stated that they had reactions of various kinds and degrees of severity, from *all* methods of administration. Swift and Ellis (45) by their use of freshly distilled and sterilized water for making their Salvarsan solution, and in preparing the sterile saline for diluting the same, have practically done away with all the unpleasant after effects of intravenous injection.

Digitized by Google

HOW FAST CAN THE FLUID BE INJECTED INTRAVENOUSLY WITH SAFETY?

Montgomery (46) says "The fluid should be injected slowly, so as to avoid any sudden overloading of the circulatory system, say in 5 or 6 minutes." MacKee (47) states that he injects 250-c. c., in from 7 to 15 minutes. Rytina (48) states that one of his patients had a severe shock following rapid intravenous infusion. At the U. S. Naval Hospital, Chelsea, Massachusetts, in January of this year, Dessez and the writer treated 7 patients intravenously in 55 minutes—a little under 8 minutes per case. The average at that hospital is between 9 and 10 minutes for each individual. I do not think it wise to introduce the solution (using the usual amount of 250 to 300-c. c.) in any less time than 7 minutes.

CONTRAINDICATIONS.

Lydston (49) lays great stress on the danger of this drug in renal syphilis. Wise (50) thinks it is absolutely contraindicated in diseases of the heart muscle, angina pectoris, diseases of the central nervous system affecting a vital organ, arterio-sclerosis advanced tuberculosis, and diabetes. That it should be cautiously given in well compensated heart lesions, acute febrile conditions, senility, cachexia, pregnancy during the last 4 or 5 months, and in cases previously treated with enesol, atoxyl, or arsacetin. Pollitzer (51) and many others consider it unsafe to use in advanced tabes, or general paresis.

SPECIAL ADVANTAGE FOR USE IN THE MILITARY SERVICE.

Jones (52) calls attention to the fact that men can quickly be returned to duty after Salvarsan treatment, with safety, thereby accomplishing a great economy of time to the Government. Ormsby, Corbus, and many others call attention of the great value of this drug where speed of action is imperative. Salvarsan is therefore of great value to the military service in that it shortens the length of time that men are necessarily absent from duty when suffering with syphilis.

The marvelous manner in which mucous membrane, and most skin lesions disappear after administration of Salvarsan renders it safe to return men to duty as soon as this happy result obtains, while keeping them constantly under observation and further

Digitized by Google

treatment. The two or three hospital admissions per case, will probably not aggregate more than 25 to 30 days.

Craig and Nichols (53) reported nine cases in which the Wassermann reaction became negative following the use of alcohol, and positive again two or three days later. I was much interested to observe this phenomenon after my attention had been drawn to this fact by reading their article. In the case at this post in which this was observed, the blood was examined at the Army Medical School in Washington.

Methods of intramuscular administration are well known to every one, as this was the method most commonly used when the drug was first introduced by Ehrlich.

There have been many kinds of apparatus devised for exhibiting the drug intravenously, among which are those described by Boehm (54), Bernart (55), Reasoner (56), Uhle and MacKinney (57), Ballenger (58), and Dakin (59). All these are good, though some are very complicated.

I desire to describe an apparatus believed to be the best devised to date, and recommend its use under the following conditions:

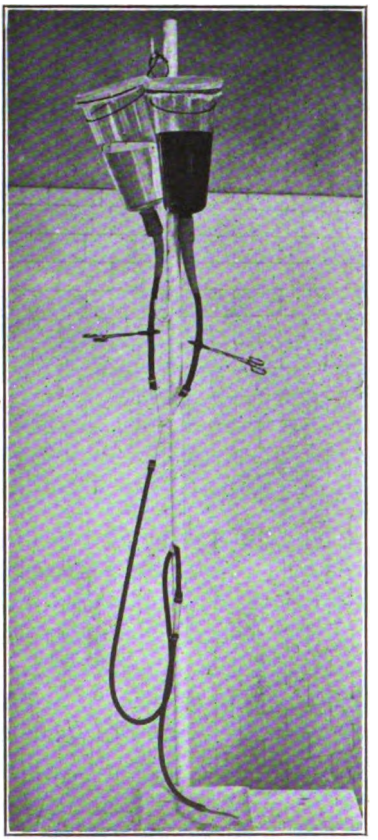
At large hospitals of the Army, Navy, U. S. Public Health and Marine-Hospital Service; Federal, State, or Municipal General Hospitals; Insane Asylums or other public institutions, where there are likely to be many cases requiring treatment with Salvarsan.

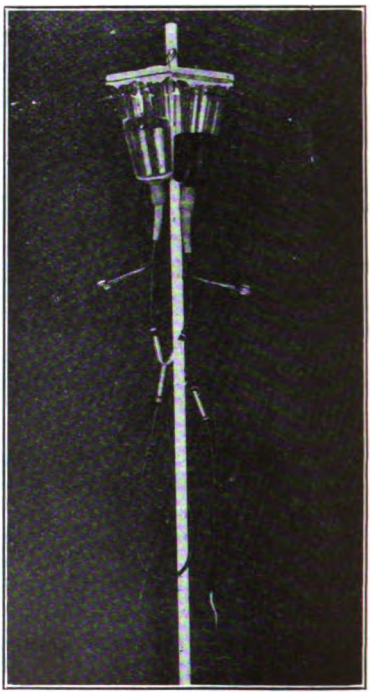
At the U. S. Naval Hospital, Chelsea, Mass., they frequently treat 8 to 10 cases at one sitting. Up to January 3rd, 1912, over 200 injections had been given at that hospital with this apparatus. One hundred and forty-four of these were administered by P. A. Surgeon Paul T. Dessez, U. S. N., who devised this apparatus. He first used this in giving intravenous saline infusions to patients suffering with Asiatic Cholera in the Philippine Islands in 1902. Boehm's (60) apparatus is very much like this one, but there is a distinct difference, and the priority belongs to Dessez. There is, therefore, nothing original claimed by the writer, who has simply modified it by putting in a glass "Y piece" instead of a "Y piece" from a stethoscope, as used by Dessez.

Greater rapidity can be accomplished by team play in using this apparatus. In each case one of the superficial veins of the

Digitized by Google

arm or forearm is used. The first attendant takes each patient as he somes in, washes off the area of skin over the site of the injection with alcohol, and then applies tincture of iodine. Next a tourniquet is applied to the arm above this area (protecting the arm with a sterile towel) to distend the veins,—and he injects under the skin over the vein, a freshly made 1 or 2% solution of cocaine. While this is being done, a second assistant prepares the Salvarsan and introduces it into the apparatus. The operator cuts down on the vein, as for an ordinary saline infusion, and gives the drug from the apparatus. One attendant stands by





DESSEZ GRAVITY APPARATUS FOR INTRAVENOUS INJECTIONS, FORT BANKS, MASS.

Digitized by Google

the apparatus to handle the clamps. The man who prepares the Salvarsan may assist the operator. While one patient is receiving his dose, another one is being prepared, and is ready to be operated upon by the time the man preceding him has received his dose. It is hardly necessary to state that in preparing the Salvarsan everything connected with it is sterilized, as also everything used in the operation.

The ampoule of Salvarsan and file are placed in alcohol. About 50-c. c., of freshly distilled and sterilized hot water are poured into a beaker, and to this is added the Salvarsan which readily dissolves, aided by a glass rod. 15% freshly made sodic hydrate solution is added drop by drop till the solution is clear, (usually requiring from 20 to 24 drops). The solution is then diluted up to 250-c. c., with hot saline solution (the saline is made with chemically pure Nace, and freshly distilled and sterilized water). This solution is then filtered through gauze into another sterile beaker. The right temperature can be ascertained by using a sterile bath thermometer. From this it is poured into the Salvarsan side of the apparatus which is covered by sterile gauze, and doubly insures its freedom from all foreign material.

The description of the apparatus will be greatly facilitated by the accompanying photograph.

It consists of two beakers, with tubing leading from their lowest points, connecting with a glass "Y piece." A clamp is attached to the tubing on each side above the glass "Y." From the dependent portion of the Y, a tube extends, in the distal end of which is inserted a transfusion canula or needle, as the case may be. A piece of glass tubing is also inserted about 18 inches from the canula. Air can be readily detected at the glass Y, and in the glass tube near the canula. The whole apparatus is sterilized and sterile gauze is placed over the mouth of each beaker, being held in place by a rubber band, as seen in the illustration.

TO OPERATE.

First both beakers are partially filled with warm saline solution, both clamps are removed and the fluid allowed to flow till all the air is out of the tubing, when the tubing from the beaker

Digitized by Google

to contain saline is clamped off, and the beaker filled up about half full of additional saline solution. The saline is allowed to continue running from the other beaker until down to the bottom, when the tube leading from it is clamped off, and the Salvarsan solution poured into that beaker.

As soon as the vein has been exposed and opened, the clamp is removed from the saline side, and the canula is introduced with the saline running. The saline is then clamped off, and the clamp removed from the Salvarsan side, permitting the Salvarsan to flow. When the Salvarsan has reached the level of the bottom of its beaker it is clamped off, and the clamp taken off the saline side again, allowing the saline to flow into the vein. The saline is then clamped off, the canula removed, and the vein tied and skin sutured. A new sterile canula can be introduced in the tubing, or the end of the tubing and canula, can be immersed in absolute alcohol while the apparatus is being recharged. When ready for the next patient the canula can be dipped in a vessel containing saline solution to wash off the alcohol, and the saline running from the apparatus at the time of next introduction to the vein, washes out any that may have gone into the luman of the canula.

Thus the dose begins and ends with saline, precluding the possibility of Salvarsan escaping into the surrounding tissues.

Many will object to using a canula and cutting down on the vein, especially in the case of women because of objectionable scarring. Moreover, it is now apparent to all that more than one dose will be necessary, so that it is possible for all the easily accessible or readily visible veins in a patient to become obliterated, if repeated many times. For those who feel this way a regular, 18 gauge needle can be inserted instead of the canula, and the vein entered without a skin incision, shutting off the saline just before introducing the needle, until in the vein.

Using either a needle or a canula, I believe this to be the most rapid method known, and of particular advantage in large institutions, where it is desirable to "run off" a number at a time. This apparatus is easy to make when the parts are assembled. The total cost of the same in this locality comes to $3.48.

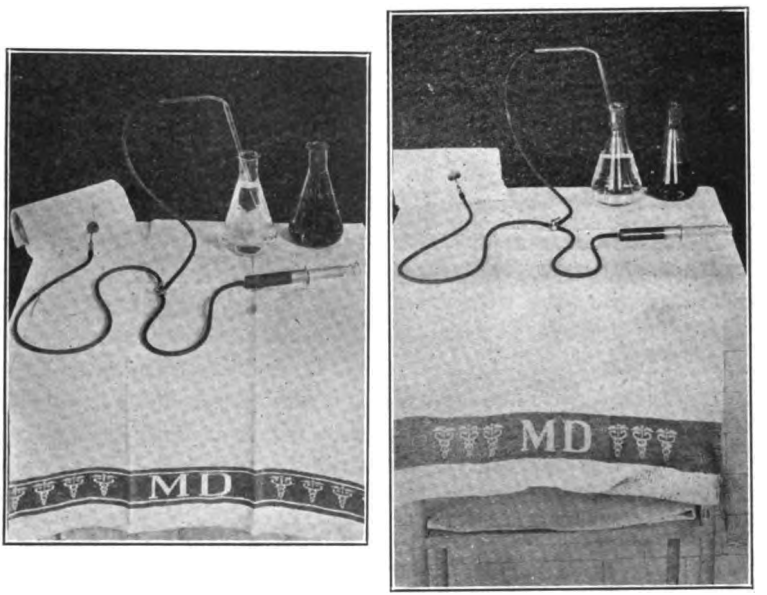
As the Dessez apparatus is rather cumbersome to carry around, adapted preferably to large institutions, the following method is recommended under the conditions cited:

Digitized by Google

1. In smaller hospitals, and in private practice, where time is not so much an element, and the cases are comparatively few.
2. Where a physician desires to treat patients at their homes. The whole apparatus can be prepared easily, and carried to the house of the patient in a small physician's bag.

This apparatus is a Schreiber. It is described for the reasons stated, and because the details of it have not, as far as I know, been published in the English language. It is used extensively in private practice in the city of Boston, and at the Massachusetts General Hospital by Cabot, Burns, and others.

The accompanying photograph will aid materially to understand the description and method of operation.



PRESSURE APPARATUS (SCHREIBER), INTRAVENOUS INJECTION OF SALVARSAN AT FORT BANKS, MASSACHUSETTS.

The apparatus consists of a "3-way" cock to each opening of which are attached pieces of rubber tubing of varying lengths. To one of the tubes is attached a piece of glass tubing bent at an angle; to one a suitable all-glass syringe of 20-c. c., capacity. A

Digitized by Google

Luer syringe, or a Burroughs, Wellcome & Co., is preferable. In the third tube is inserted a metal receiver, to be connected to the Schreiber needle when ready. If a Schreiber needle is not available any 17 or 18 gauge needle that fits the receiver will do. If desired, such a needle can be tied directly into the end of the tube and no metal receiver used. One bottle containing warm sterile physiological salt solution, and one containing freshly prepared warm Salvarsan, complete the apparatus.

TO OPERATE.

Prepare the patient and Salvarsan in same manner as for the other apparatus. Cocaine may, or may not be used. Preferably not, as the pain of introducing the needle through the skin is momentary, and the cocaine solution tends to obscure the vein during the introduction. The end of the glass tube is placed in the bottle of saline. The cock is turned so that it allows communication from this *bottle only,* and the piston of the syringe is gently pulled out, drawing up saline solution and filling the tube and syringe. By this, and a few easy manipulations, all air can be gotten out. The cock is then turned so as to shut off the flow from the bottle, and the piston is pressed in, forcing out the air, and filling the tube with saline from the syringe to the attachment for the needle at the end of that tube. This process should be repeated until all air is out. The needle is then introduced through the skin into the vein. When blood flows from the needle, remove the tourniquet from the arm, and connect up the needle with the attachment or the receiver for it, in the end of the tubing. Press saline down from the syringe by pushing in the piston, to be sure the needle is in the vein. This is ascertained by the presence or absence of distension of the tissues around the vein, with fluid from the needle. If in the vein, gently force the remainder of the saline in the syringe, into the vein, then turn the cock toward the saline bottle again. Pinch the tubing near the glass tube, between your fingers, and remove it from the saline bottle, placing it in the bottle of Salvarsan solution. Draw up Salvarsan, shut the cock again and press the Salvarsan along the other tube leading to and into the vein. Shifting the cock in this way, continue drawing up and introducing Salvarsan until the dose is finished. Then shift the glass tube back to the saline

Digitized by Google

bottle, draw up saline solution, and finish the injection with that fluid.

This leaves no scar, and the vein is available for use on subsequent occasions. In cases where the vein rolls under the skin, and continually evades the needle, the expedient of Doctor Hugh Cabot of Boston, may be adopted. Use a small, straight, sharp, cambric needle, and carefully transfix the skin and outer coating of the wall of the vein, without entering its luman. This steadies the vein, and the needle can easily be introduced just below the point of transfixion. If the vein is too small to see or to get into through the skin, an incision should be made and the vein exposed. The needle can then be inserted, leaving the vein when the fluid has been introduced, intact for future use. Should the operator desire, the vein can be ligated and a canula used instead of a needle. This procedure, however, should rarely be necessary. The component parts of the Schreiber apparatus can be assembled at a total cost of about $2.55.

CONCLUSIONS.

1. While in the majority of cases intravenous administration of Salvarsan is probably the best method, the intramuscular injection should by no means be abandoned.
2. That the intravenous should be used first.
3. That all cases of lues should complete their supposed cure with an intramuscular injection or injections, particularly in cases of more than three months' standing.
4. Mercury should be used regularly in the treatment of syphilis, following up the Salvarsan.
5. In tertiary syphilis potassium iodide should also be used.
6. When using the intravenous method, only freshly distilled and sterilized water should be employed to dissolve the Salvarsan.
7. In diluting the dissolved Salvarsan, only normal saline solution should be used, which has been made with freshly distilled and sterilized water, and chemically pure sodium chloride.
8. Acid solutions should never be used.
9. Salvarsan dissolved and diluted with distilled water *only*, should never be injected.
10. That the Dessez apparatus is the best for rapid work in large institutions.

Digitized by Google

11. That for intramuscular injections the method used at the Massachusetts General Hospital is as good as any.

12. That the use of oily suspensions of the drug, compares favorably with aqueous solutions in its intramuscular exhibition.

13. That intramuscular injections should not be made into the muscles of the lumbar region, but in the gluteal region high up and to the outside.

14. That lesions of the eye and ear do not contraindicate the use of Salvarsan.

REFERENCES.

1. Sutton—Boston Medical and Surgical Journal, Dec. 21, 1911.
2. Idem. Idem.
3. Wechselmann—Deutsch. Med. Wchnsehr, 1911, XXXVII, 778.
4. Swift and Ellis—Journal Amer. Med. Assocn., Dec. 23, 1911.
5. Lambert—Medical Record, Jan. 14, 1911.
6. Slusher and Burchell—N. Y. Med. Journ., July 15, 1911.
7. Boehm—Idem, Dec. 2, 1911.
8. Von Notthaft—Deutsche Medizinsche Wochenschrift, Feb. 2, 1911.
9. Fraenkel and Grouven—Munchener Medizinische Wochenschrift, Aug. 22, 1910.
10. Herring—Munchener Medizinische Wochenschrift, LVII, page 2621, 1910.
11. MacKee—New York Med. Journal, Oct. 21, 1911.
12. Corbus—Journal Amer. Med. Assocn., April 29, 1911.
13. Burke—New York Med. Journal, March 11, 1911.
14. Hart—Idem, Feb. 18, 1911.
15. Jones—Boston Medical and Surgical Journal ,March 16, 1911.
16. Meltzer—Medical Record, March 25, 1911.
17. Cabot—Boston Medical and Surgical Journal, Oct. 5, 1911.
18. Pollitizer—Idem. Idem.
19. Kromayer—Berliner Klinische Wochenschrift, Sept. 12, 1911.
20. Schamberg—Journal Amer. Med. Assocn., May 20, 1911.
21. Sutton—Boston Med. and Surg. Journal, Dec. 21, 1911.
22. Corbus—Journal Amer. Med. Assocn., Feb. 25, 1911.
23. McKenna—Idem, March 18, 1911.
24. Schamberg—Idem, May 20, 1911.
25. Reasoner—Idem, June 17, 1911.
26. Fox and Trimble—Idem, Nov. 18, 1911.
27. Fordyce—New York Medical Journal, May 6, 1911.
28. Fox and Trimble—New York Medical Journal, March 11, 1911.
29. Burke—Idem. Idem.
30. Pollitzer—Idem, March 4, 1911.
31. The Surgeon General, U. S. A., Circular 3, S. G. O., W. D., June 3, 1911.

Digitized by Google

32. Pusey—Journal Amer. Med. Assocn., Jan. 14, 1911.
33. Ormsby—Idem, Feb. 18, 1911.
34. Geraghty and Keidel—Idem, Nov. 18, 1911.
35. McKenna—Idem March 18, 1911.
36. Lambert—Medical Record, Jan. 14, 1911.
37. Trimble—Idem, May 6, 1911.
38. Corbus—Idem, Nov. 18, 1911.
39. Ballenger and Elder—Idem, Dec. 2, 1911.
40. Fordyce—New York Med. Journal, May 6, 1911.
41. Cunningham—Boston Med. and Surg. Journal, Aug. 17 and Aug. 24, 1911.
42. Schamberg—Journal Amer. Med. Assocn., May 20, 1911.
43. Rosenbaum—Medical Record, July 22, 1911.
44. Pollitzer—N. Y. Med. Journal, Feb. 4, 1911.
45. Swift and Ellis—N. Y. Medical Journal, Dec. 23, 1911.
46. Montgomery—Journal Amer. Med. Assocn., Feb. 18, 1911.
47. MacKee—N. Y. Med. Journal, Oct. 21, 1911.
48. Rytina—Idem, March 4, 1911.
49. Lydston—Idem, Oct. 21, 1911.
50. Wise—Idem, April 29, 1911.
51. Pollitizer—Idem, Feb. 4, 1911.
52. Jones—Boston Med. and Surg. Journal, March 16, 1911.
53. Craig and Nichols—Journal Amer. Med. Assocn., Aug. 5, 1911.
54. Boehm—Journal Amer. Med. Assocn., March 11, 1911.
55. Bernart—Idem, April 22, 1911.
56. Reasoner—Idem, June 17, 1911.
57. Uhle and MacKinney—N. Y. Med. Journal, July 8, 1911.
58. Ballenger—Idem, April 29, 1911.
59. Dakin—Journal Amer. Med. Assocn., Jan. 13, 1912.
60. Boehm—Idem, March 11, 1911.

Digitized by Google

RECRUITING IN THE NAVY.*

By Medical Inspector CHARLES H. T. LOWNDES, U. S. Navy.

THE subject has been so often discussed that it is actually threadbare, so I am not going to repeat in detail the examination of recruits, for if the Medical Officer has not learned *how to* examine a man while a student at the Naval Medical School no article of mine or indeed of any other Medical Officer in the Navy will teach him. I intend in this article to confine myself to recruiting for the Naval Service, omitting the Marine Corps and recruiting in general. I shall simply state a few dry facts and mention some of my personal experiences, which have occurred while on duty at the Navy Recruiting Station, Baltimore, Md.

Until recently, in my opinion, recruiting duty has not been given the importance it deserves. With traveling recruiting parties I cannot imagine a more disagreeable duty for the Medical Officer, yet on the other hand in a large city where there is a permanent station there is hardly any duty more agreeable. If a Medical Officer so stationed does not take advantage of his opportunities he has no one to blame but himself, he has the entré of the hospitals and the clinics and his medical brothers extend him a cordial welcome to come and study among them.

It is not in a spirit of criticism that I say this: yet I believe if it be possible no Medical Officer should be detailed for recruiting duty unless he has made a cruise on a sea-going ship. It is hardly fair to a young Assistant Surgeon who perhaps has never seen a modern battleship to have to select men who are to live and work on that ship. Men he rejects could well be accepted, and too true is the opposite proposition.

The personality of the Medical Officer should be considered, we all know of the failures some medical men have made. They lack tact and the art, if you please, known in the political world of being a "mixer." A recruit has some feeling and if it is necessary to reject him, at least it can be done kindly instead of making

*Read by title at the 20th Annual Meeting.

Digitized by Google

that man antagonistic to the service. He will have a good word for the Navy and frequently will send other recruits.

Again much of the success of recruiting depends on the line officer in charge. He must like his duty and be in sympathy with the Medical Officer. The enlisted force in the office should be carefully selected, men who are, if possible, natives of the state in which the recruiting station is situated. Not only are the men more contented, but in a general way can place a certain value upon each recruit. They induce their friends to enlist and thus take a personal pride in the station's success.

At last the Navy has separated itself from the old moss grown tradition that a recruiting station must be near the waterfront; to get the sailor was eternally the cry, but now the truth has dawned upon those in power, that the average man recruited off the waterfront is probably the least desirable of all recruits.

Now the Navy wants the clean cut, bright American boy, one who learns and easily adapts himself and becomes the modern man-of-war's man. In order to obtain this class of recruits it is absolutely necessary that the recruiting station shall be in the center of the city, and on one of the most prominent thoroughfares; even if the cost is greater this site must be selected. With this location it is manifestly difficult with the facilities afforded the Medical Officer for him to make an accurate physical examination of the chest; diseases of the lungs and heart must sometimes escape him; likewise defective hearing will not always be detected. It is an actual fact while steaming, the noises in the sick bay of the U. S. S. Virginia were not as confusing as those heard on a busy day, at the recruiting station in Baltimore.

I go into detail on this subject so the surgeons at the training stations and recruiting ships may understand why a recruit's physical defect has not been recognized by the recruiting officer. I ask them to be charitable and suspend judgment of that officer until all of the facts in the case are known.

Just a word in conducting the physical examination of a recruit, perhaps my way is not as good as one of some else, *quien sabe!* I have in my office two men; a hospital apprentice, 1st class, who does the recording, and a second man—a bright and intelligent coxswain who assists me with the examination; the recruit is first examined for color perception, vision and hearing, he then undresses; entirely nude, hands extended over head, turns

Digitized by Google

slowly around; next he is put through the exercise to determine the motion of all the joints. During these exercises I carefully observe the applicant; in other words, I wish to emphasize the importance of *inspecting the nude recruit,* he being at that time unconscious that such an inspection is being made. I then begin my personal examination; starting with the examination of the ears and ending with that of the feet.

Much has been written of late concerning the mental examination of the recruit, while I admit the articles on that subject have been of value—yet I have not found it practicable to conduct such an examination as some Medical Officers of the Navy advise. My plan is this: the applicant is carefully questioned about himself while making out his application in the outer office, if there is any suspicion that he is mentally below par or indeed any feature that would make him undesirable, I am notified before the recruit enters the examination room. During the entire examination I question him in a general way about his past surroundings, family history and previous diseases, etc.; from his answers and the result of the general physical examination I form my opinion of the mental status of the recruit. This examination, I believe, is the best we can make considering the limited time at our disposal.

To the young surgeon who has had no experience I would say, remember a man who is physically sound for life insurance is not always physically the man for the Naval Service; and remember again, whenever a doubt arises in your mind regarding the physical or mental fitness of the recruit, give yourself the benefit of the doubt, in other words, do not accept a recruit if you are not willing to have him with you aboard ship.

Having disposed of the dry facts, I will briefly mention some of my personal experiences while recruiting in Baltimore. In many ways Baltimore is a peculiar city; a city of nearly 600,000 inhabitants has a comparatively small floating population. This feature eliminates to a great extent the "hobo" element found in other large cities, and likewise explains some of the odd features observed in recruiting in this city.

I may say that three-fourths of the weekly recruits are enlisted in the first three days of each week. This is explained by the fact that most of the recruits obtained enter the Navy from choice and not necessity. They decide the week previous, resign

Digitized by Google

their positions Saturday night and appear for enlistment the early part of the week; in this regard it would be of interest to note what percentage of desertions occur among the enlisted force who have been recruited in Baltimore. Another odd fact is that recruiting in Baltimore reaches its lowest ebb during the opening of the baseball season, or when a circus or wild west show comes to town, such, however, can be explained by my above statement of the small floating population.

I think the best type of recruit I obtain is the country boy. While he has much to learn, yet he is sound physically and morally; the worst come from the big factories—they can hardly remember when they did not work, never knowing what play and happiness are, they are dwarfed both in body and in mind, thus they are seldom able to pass the physical examination. Next to the last type of recruits come the oyster-dredgers: to one not acquainted with their occupation one can not understand the sufferings and hardships they endure—it ages the young and wrecks the strongest constitution, consequently this class of men is most undesirable.

From Oct. 1st, 1910, to June 30th, 1911—a period of nine months—there were 2,072 applicants for enlistment. Out of this number 1,389 were "rejected for causes other than physical," so really only 683 recruits appeared before me for physical examination. This is not correct, for under the "rejections other than physical" 372 applicants were underweight—71 underheight, and 75 both underweight and underheight—a total of 518 which should properly be classed as physical rejections, and this will explain the large number of recruits accepted. Out of the total number examined, viz., 683, 408 were accepted and 275 rejected, thus the correct figures would be of the 1,201 applicants examined physically, 408 were found qualified, about one man in every three examined—an excellent tribute to the physical condition of the young men of Baltimore. Aside from the underweight and underheight the principal causes for rejection were as follows: defective vision 79, many of these cases had 20-20 vision in one eye, while as low as 2-20 in the other—the result of injuries received in early youth while engaged in the pleasing pastime of "stone battles."

Flat feet gave 21 rejections—all marked cases and of the white race. In the negro in Baltimore flat feet is universal and

Digitized by Google

that defect alone, with me is not a cause for rejection. Varicocele came next with 20 rejections. Disease of the heart 17; usually a history of rheumatism or scarlet fever could be obtained. Defective teeth 16—of these the oyster dredger and factory lad furnished their full quota. I was surprised to find the great number of color blind—19 out of 683 recruits examined, and all of these with defective perception only one was of direct Irish descent.

Another surprise was the few rejections for venereal disease, only 9—3 cases of syphilis, one being a re-enlistment, the remaining 6 gonorrhoea. While "Poor Physique" was the actual cause for only 15 rejections, yet I believe the weight if not the height of minors should be increased. A boy 17 years, weighing 110 pounds, is too light for the Navy, especially if only 62 inches high—as a rule he will always remain of small stature. The minimum weight should be at 17 years at least 115 pounds and the height increased one inch.

In conclusion, while it is of no practical value in recruiting to the Medical Officer, it simply substantiates my previous statement that a recruiting station must be centrally located. This point is proved by the applicant's answer to the following question contained on the application blank for enlistment: What advertisement of the recruiting station did you see? To this question the following answers were received: Flag 1325, Newspapers 370—while circular letters, booklets and posters attracted very few. And the magazines only brought 29 into the Naval Service.

Digitized by Google

CONTAGIOUS DISEASES ON BOARD SHIP.*

By Surgeon EDWARD G. PARKER, U. S. Navy.

THE scope of this paper is confined to the consideration of contagious diseases in connection with ships acting singly and away from hospital, hospital ships, or other places to which cases may be transferred. In other words, we are dealing with the care, prevention of spread, convalescence and safe restoration to duty, of contagious cases, all phases being carried out on board the same ship.

The problem, of course, is relatively simple if one has a hospital or hospital ship available, or can establish an isolation camp on shore, but we are not concerned with this.

The importance of the subject is obvious, for, let us imagine, for example, a ship engaged upon an important mission during war time: how great must be the consternation among the whole ship's company should smallpox or cholera break out; all hands knowing that the disease must be dealt with on board. Certainly under such conditions the ship's efficiency might be seriously impaired. The commanding officer and all on board would look to the medical officer and to him alone for help.

With the appearance of a contagious disease among a ship's company the naval medical officer is confronted by a problem which is in many respects unique, and entirely unlike that produced by a corresponding condition in any other walk of life.

The civilian physician, for example, whether he be practicing in the residence district of the better classes, or in a crowded tenement quarter, has a much simpler task.

In the first place he always finds more or less inherent segregation of his patients, as determined by their occupation of separate rooms, grouping by families and the like. In the use of household utensils, dishes, etc., which are common carriers of disease, this segregation by families at least is pretty clearly defined.

In consequence of this natural grouping the civilian practitioner can always determine after a moment's investigation, what persons have been exposed and who may be regarded as sus-

*Read by title at the 20th Annual Meeting.

Digitized by Google

pects. With the segregation and isolation of these persons he has his contagious disease so far as further spreading is concerned, under absolute control.

Not so, however, with the naval medical officer; for with respect to contagious disease the modern warship should be regarded as a single large room with a thousand or more occupants, all using common household utensils, mess gear and the like. Here, there is little or no inherent grouping, the thousand occupants living, sleeping and eating in closest personal association.

While the naval medical officer may cull out from the ship's company by frequent inspections such suspects as show possible prodromal symptoms, yet in consequence of this lack of grouping it is utterly impossible for him to determine absolutely all persons who have been exposed.

Herein lies the chief difficulty of the problem as compared with that of the civilian practitioner who can always determine the exposures and with this very essential knowledge at his command he finds a very simple task.

The avenues of introduction on board ship of contagious diseases are mainly through food supply. Milk, green vegetables, fresh fruit, bumboat wares, especially soft drinks, are the common offenders. More important than these, however, is the actual exposure of liberty men on shore. This is frequently borne out by the fact, that when several ships are together, it is uncommon that contagious diseases exist on one ship alone. As ship visiting by the crews is restricted at such times and transmission from ship to ship unlikely, it is most reasonable to assume that liberty men from the several ships have been exposed to a common source of contagion on shore.

The fly may play a very important part in the introduction of contagion on board ship.

When ships are lying at anchor in harbors where local regulations prohibit the dumping of garbage overboard, this waste must be sent ashore in garbage lighters. Innumerable flies accompany these lighters on each return trip, and in an infected port this means of contagion is not to be overlooked.

Although it has been shown that the fly spends his entire existence within a radius of 500 yards from the spot where he is born;

Digitized by Google

yet it has also been proven that a fly will follow a garbage conveyance many miles.

Since the most common source of infection is an infected man, the wholesale visiting of ships by large crowds from shore is always a menace.

The modes of transmission on board ship are numerous, chief among these being by way of the scuttle butt. Mess gear, personal contact, fomites, bedding, hammocks, and personal articles, such as pipes and tobacco, etc., are important.

The only type of scuttle butt admissible on a modern warship is that with the bubbling spring drinking terminal. The drinking cup with tray for antiseptic solution in which the cup is to be immersed when not in use, was a great advance over the former common drinking cup; yet it has been the writer's experience that the cup never could be properly immersed—that the tray for antiseptic solution could never be kept full enough for efficient sterilization.

During an epidemic on board ship the writer was obliged to have an orderly stationed at the scuttle butt, whose business it was to see that the antiseptic was kept at a sufficient level and the cup immersed when not in use. It was found that the cup was frequently left hanging—no attempt being made to replace it in the antiseptic solution. The cup in being quickly taken out of the tray would bring with it a considerable quantity of antiseptic solution, so that the tray would have to be refilled many times daily.

The type of scuttle butt drinking terminal as now supplied our ships, although apparently ideal, has one distinct defect. The supply of water comes from the sides of the fountain nozzle within the geyser cup (see A) rather than from its upper surface or end as it should (see B).

With the type "A" now in use it is the common practice for the men to place their lips to the cup and drink as the water flows over the side of the cup. Since with this type the level of the water is raised but little above the sides it is not convenient to drink from the center of the cup, and the men will not do this unless sufficiently instructed, and even then they forget and drink in the easiest way. This makes the particular type "A" but little better than the old common drinking cup; for this reason this type is criticised. Another point in this connection may be shown: if

Digitized by Google

one places a small bit of wood within the center of the geyser cup, it will be seen that the wood will not be washed out of the cup, but will circle about in it, never, however, leaving it, showing that the cup never washes itself clear. With the improved type "B" it is different. As the spigot is turned on, a column of water some two inches in height rises in the center of the geyser cup, and from this it is easy to drink without touching the lips to the cup. In fact, if the drinker attempts to place his lips to the cup and then turns on the water the column in the center simply shoots up the nose and he desists immediately. From this it will be seen that type "B" gives a scuttle butt terminal which cannot be other than sanitary.

A weak point, however, with the drinking water supply on board ship is in the fireroom. A separate lead from the scuttle butt through the protective deck to the fireroom has thus far

either never been attempted or is considered impracticable. Water buckets with a common drinking cup are now in use as of old—and these are never sanitary, to say the least. Attempts have been made by medical officers to ameliorate this unsanitary condition by buckets containing antiseptic solution in which the drinking cup is to be immersed. My experience has been that the cup would either not be kept in the solution or that the men in spite of the red cross and poison label on the bucket containing antiseptic solution, would drink of this solution, see the poison label and appear at the sick bay thoroughly scared. Of course, with this possibility in view, antiseptic solutions could never be made of efficient strength.

It is perfectly simple and entirely practicable to supply each fireroom with a portable scuttle butt with the proper type of

Digitized by Google

drinking terminal such as has been suggested in this article. These can be made of such dimensions as will enable them to be hung on a bulkhead closely and take up no unnecessary space. They should be covered with asbestos which will keep the water cool. They are no more difficult to handle than the ordinary bucket of water and by them the use of the common drinking cup is obviated.

Having the type of scuttle butt suggested in use on deck and in the fireroom the medical officer can at once exclude the drinking water supply as a source of contagion. And a great comfort this will be to him, for he needs his time to devote toward other conditions which cannot be so easily handled.

As regards the mess gear: in the presence of contagious disease the medical officer should make it his business to see that all mess gear is not only properly washed but exposed to a temperature of 212 F., by steam or scalding water for a sufficient length of time to preclude the possibility of their transmitting disease. He should not be content with their being washed in water hot enough to remove the grease and apparently clean; much rather he must assure himself that during washing they are sterilized.

With regard to transmission by personal articles it is well known that the transfer of pipes and tobacco is common among the crew, yet the use of Bull Durham tobacco for cigarettes deserves mention. It is a common practice of all users of Bull Durham tobacco for cigarettes to empty into a cigarette paper sufficient tobacco to make himself a cigarette—then to close the bag by drawing on the pucker string with his teeth. The user then passes the bag to his friend—who makes himself a cigarette —always closing the bag by drawing on the saliva soaked pucker string with his teeth, thereby infecting himself with possible saliva borne disease.

Personal contact, fomites, etc., being of themselves in a measure inevitable and not readily amenable to correction will be discussed later under the heading of prevention of spread.

PREVENTION OF SPREAD.

For the control of contagious disease on board ship it is absolutely essential that the several spaces assigned to the Medical Department be concentrated in one part of the ship, and so ar-

Digitized by Google

ranged that the entire department may be shut off from the rest of the ship for the purposes of fumigation.

The isolation ward must be separated from the sick bay by the bath room and its sole communication with the outside world should be through this bath room and sick bay. The arrangement of other spaces need not be specific but is rather a matter of convenience.

Isolation ward. Having defined its specific location with respect to the rest of the Medical Department, the isolation ward must be constructed as follows: there must be plenty of daylight for the detection of evanescent and slight cutaneous eruptions. It should have at least six bunks and separate toilet conveniences. Its ventilation is most important; there must be efficient supply and exhaust, and the intakes must be so situated that there will be a goodly supply of fresh air under the severest stress of sea weather. The writer well remembers how on the U. S. S. California as soon as the ship put to sea in even moderate weather the cowls of the intakes of the isolation ward had to be unshipped, and the isolation ward full of contagious patients became at once uninhabitable. It was necessary then to install portable blowers in the ammunition passage with canvas blower pipes some fifty feet in length leading to the ward. These furnished the only supply—there was no exhaust possible, and one can readily imagine the danger of spreading infection under these conditions.

In an outbreak of smallpox on board a cruiser such as the California there was a spread of this dread disease which might be traceable to improper ventilation in the isolation ward. The ship was at sea and the weather conditions made it obligatory to unship the cowls of the intakes to the isolation ward. The place became uninhabitable and the transfer of smallpox patients to the unoccupied cabin was necessary. One may assume that the spread of infection very likely took place during this transfer. Hence the absolute necessity of an isolation ward on board ship, with a ventilating system efficient at all times. As an extra precaution, the exhaust in the isolation ward should be covered with gauze which is kept wet with bichloride solution, to prevent infected particles from being disseminated by this route.

Having outlined the arrangements in the Medical Department suitable for the control of contagious diseases, it remains now

Digitized by Google

to consider what the medical officer personally may do to prevent spread of infection.

First of all having discovered a contagious disease or suspect at sick call the medical officer immediately places him in the isolation ward. A reliable hospital apprentice then takes a sheet wet with bichloride solution, 1-500, and places all the effects of the sick one in it and transfers them to their owner in the isolation ward. Should a suspected case appear during the day, the hospital steward places him in the bath room adjoining the isolation ward until he is seen by a medical officer who makes such disposition as is indicated.

With the arrangement of the bath room between the isolation ward and the sick bay, the necessary gowns, shoes, cap, etc., required by the medical officer in visiting contagious cases may be safely hung in the bath room.

After complete recovery and desquamation, and upon the eve of his discharge to duty, the contagious patient steps naked into an antiseptic bath in the bath room. Having thoroughly cleansed himself, he goes to a clean bed in the sick bay and there spends the night. Meantime the isolation ward, containing all the effects of the patient, is closed and thoroughly fumigated over night. In the morning the patient receives all his sterile effects and safely proceeds to duty

With a medical department constructed along the lines which have been suggested, with the absolute assurance that there is no leak in his quarantine, that all the mess gear is sterilized when cleaned, and with the perfect type of scuttle butt, the medical officer can approach the problem of prevention of spread with full confidence.

With strict personal attention to the details which follow, the medical officer can positively assure his commanding officer that there will be little or no spread of disease.

First of all with the presence of contagious disease on board, the medical officer should personally inspect every man on board in broad daylight twice daily. This may be readily done at morning and evening quarters and will require but a few minutes, not interfering with the ship's routine in the least.

Should the exanthemata be in question, then all hands should be stripped to the waist for inspection. The medical officer should never consider it sufficient to have the word passed by

Digitized by Google

the division officers that all men having coughs or colds or whatever the prodromata may be, lay below to the doctor. Every one knows that the average sailor man will not go to the doctor unless he is so sick that he cannot help it. During an epidemic of diphtheria it was the writer's experience to find at one of these inspections two men with large pharyngeal patches, who declared they were not sick and resented isolation.

Actual personal inspection is then an absolute requisite..

Should diphtheria be the disease sought for all throats must be examined. The necessary tongue depressors can be made in the carpenter shop in a few minutes, and then be thrown overboard as used.

The writer cannot urge too strongly the value of these inspections—for suspects and actual cases are frequently found, these are then isolated at a much earlier period than would otherwise be possible, and frequently before they have done any damage.

The fumigation of bedding and hammocks of all on board can regularly be done without interfering with the ship's routine. At reveille all hammocks are placed within one or more tight compartments, gun casemates answering the purpose, and fumigated with formaldehyde gas. At hammocks at night the process is complete and the hammocks are distributed.

With inspection and hammock fumigation completed, there remains only those possible foci about the decks themselves. These may be disposed of during the regular morning washing down by using 1-800 bichloride solution. All compartments known to have harbored contagious cases must be shut off and fumigated; all spit kids must contain cresol or other antiseptics and the deck about them kept swabbed up with bichloride solution.

Garbage lighters should be thoroughly washed down as soon as they are brought alongside, preferably before they leave shore if uninfected water is available, so that no morsel of food or decaying vegetable matter be left to attract flies.

On the modern warship it is safe to assume that there are no breeding places for flies. All flies are introduced from without—it remains but to destroy them. A very useful device for this purpose has recently been tried out and found efficient. A bottle containing a 2% solution of formalin is inverted in a saucer. The saucer should contain a slice of bread covered with milk or a

Digitized by Google

piece of stale meat well saturated with formalin. The fly eats this and soon expires. If a solution stronger than 2% be used it will repel the fly by its odor. As the fly is attracted to its food solely by sense of smell, the more odoriferous the bait the better. A bit of fish or crab is best of all. The device may be lashed to a small piece of board and hung about the decks at places which appear most attractive to the fly. If we are dealing with a mosquito-borne disease, there should be daily inspection of, and search for water-containing vessels, which may furnish breeding places for mosquitoes. Fire buckets, empty bottles among wine stores, water pitchers and slop jars in unoccupied rooms, and the bilges, especially under the fresh water tanks are commonly found at fault.

Realizing that all contagious diseases are due to micro-organisms and that for the dissemination of these, particles of dust, scales, secretions, etc., are necessary—then one must regard the contagion as spreading from one or more foci which by diligent effort can be found.

The details which have been outlined above have been thoroughly tried out, and after some little experience the writer by their conscientious use has never failed to control contagion on board ship.

Digitized by Google

SOME TESTS AS TO THE EFFICACY OF CHLORINATED LIME IN PURIFYING DRINKING WATER.*

From the Laboratory of the Army General Hospital, San Francisco.

By 1st Lieut. ALEXANDER T. COOPER, Medical Corps, U. S. A.

THERE has recently appeared in the medical literature reports as to the efficacy of chlorinated lime in weak dilution in removing harmful organisms from water. To confirm, if possible, these reports and determine if questionable and suspicious drinking water can be rendered inocuous, by adding chlorinated lime in high dilutions, the following experiments were undertaken in this laboratory. The chlorinated lime used was that supplied by the U. S. Army Supply Depots in 600 gram bottles, analysis of which showed the the available chlorine to be approximately 30%.

Experiment No. 1. To one liter of tap water was added about .5 gram of human feces and this thoroughly emulsified. 5 c. c. of this emulsion was added to each seven flasks, each containing one liter of tap water. The bacterial count in each of these flasks proved to be approxiamtely 200,000 per c. c. Into the first flask was put 1 c. c. of a 1-1000 solution of chlorinated lime, this making a dilution of 1-1,000,000 of chlorinated lime. In flask No. 2 was placed 2 c. c. of the 1-1,000 solution, this making a dilution of 1-500,000 chlorinated lime. In flask No. 3 was placed 3 c. c., making a dilution of 1-330,000. In flask No. 4 was placed 4 c. c., making a dilution of 1-250,000. In flask No. 5 was placed 5 c. c., making a dilution of 1-200,000.. In flask No. 6 was placed 7½ c. c., making a dilution of 1-150,000. In flask No. 7 was placed 10 c. c., making a dilution of 1-100,000. These various dilutions were allowed to stand 30 minutes and then 1 c. c. from each was plated in agar, incubated for 24 hours at 37 C. and 48 hours at room temperature. The bacterial counts per c. c. from the flasks were as follows:

*Read by title at the 20th Annual Meeting.

Digitized by Google

Control .....200,000 per c. c.

Dilution of lime.	Bacterial Count.
1 to 1,000,000	200,000
1 to 500,000	150,000
1 to 330,000	150,000
1 to 250,000	100,000
1 to 200,000	4,000
1 to 150,000	2,000
1 to 100,000	1,000

Experiment No. 2.—The first experiment was repeated a few days later except that the bacterial count was greatly reduced by the addition of tap water. The results were as follows:

Control, colony count, 150 bacteria per c.c.
Time, 20 minutes.

Dilution of chlorinated lime.	Colony count.	
1 to 1,000,000	100	
1 to 750,000	3	
1 to 500,000	3	not B. Coli.
1 to 350,000	2	not B. Coli.
1 to 250,000	0	
1 to 200,000	1	not B. Coli.
1 to 100,000	1	not B. Coli.

Experiment No. 3.—The water used for this experiment was raw creek water from Lobos Creek taken August 4th, and was not otherwise contaminated. Various dilutions of chlorinated lime were made as previously described and 1 c. c. from each flask was planted on agar at the end of 10 minutes, and also at the end of 20 minutes, the plates incubated in the thermostat for 24 hours and then 48 hours at room temperature. The bacterial counts per c. c. from the various dilutions were as follows:

Control .....500 per c. c.

Dilution of lime.	Bacterial Count.			
1 to 1,000,000	10 min.	250	20 min.	200
1 to 750,000	10 min.	150	20 min.	30
1 to 500,000	10 min.	5	20 min.	5
1 to 350,000	10 min.	100	20 min.	50

Digitized by Google

1 to	250,000	10 min.	10	20 min.	5
1 to	200,000	10 min.	10	20 min.	5
1 to	100,000	10 min.	5	20 min.	3

Experiment No. 4.—This experiment was done with the object of isolating Bacillus Coli from as many dilutions as possible, consequently a complete bacteriological water analysis was made of each dilution. Raw creek water taken from Lobos Creek on August 7th was used. The various dilutions of chlorinated lime were made as in the first experiment and allowed to stand 20 to 25 minutes. The results were as follows:

Control, raw creek water, colony count after 72 hours, 10,000. B. Coli was isolated.

Dilution of lime.	Colony Count.	
1 to 1,000,000	10,000	B. Coli was isolated
1 to 750,000	1,500	B. Coli was isolated
1 to 500,000	5,000	B. Coli was isolated
1 to 350,000	1,500	B. Coli was not isolated
1 to 250,000	25	B. Coli was not isolated
1 to 200,000	10	B. Coli was not isolated
1 to 100,000	10	B. Coli was not isolated

Experiment No. 5.—This test was made on water collected from Lobos Creek on August 24th and incubated at room temperature for 24 hours to increase the bacterial count and 500 c. c. poured in several flasks. Various dilutions were made of the chlorinated lime in these several flasks as in the first test and a complete water analysis made from each sample after adding the lime and allowing to stand for 20 minutes. The results were as follows:

Control, colony count, 15,000 per c. c. B. Coli isolated.

Dilution of of lime.	Time.	Colony Count.	
1 to 1,000,000	20 min.	5,000	B. Coli isolated
1 to 750,000	20 min.	2,000	B. Coli isolated
1 to 500,000	20 min.	50	B. Coli isolated
1 to 350,000	20 min.	8	B. Coli not found
1 to 250,000	20 min.	8	B. Coli not found
1 to 200,000	20 min.	0	
1 to 100,000	20 min.	0	

Digitized by Google

Experiment No. 6.—To each of seven flasks containing one liter of tap water was added 1 c. c. of an even emulsion of typhoid bacilli. The control count in each of these flasks proved to be approximately 50,000 bacteria per c. c. Chlorinated lime to various dilutions was added and well shaken then allowed to stand for 20 minutes. 1 c. c. from each flask was plated in agar and incubated. At the end of 72 hours the colony count was as follows

Control .....50,000 colonies per c. c.

Dilution of lime.	Time.	Bacterial count.	
1 to 1,000,000	20 min.	15,000	B. Typhosus present
1 to 750,000	20 min.	50	B. Typhosus present
1 to 500,000	20 min.	15	B. Typhosus present
1 to 350,000	20 min.	3	B. Typhosus not present
1 to 250,000	20 min.	1	B. Typhosus not present
1 to 200,000	20 min.	1	B. Typhosus not present
1 to 100,000	20 min.	1	B. Typhosus not present

Various strengths of chlorinated lime in water were made in order to ascertain the potability. Above 1 to 350,000 there was present no taste. Below that dilution chlorinated lime could be tasted in the water but not unpleasantly.

In all these tests except one the chlorinated lime in a dilution of 1 to 200,000 was sufficient to reduce the bacterial count to not more than 10 colonies per c. c. and in most instances practically sterilized the water. The water used was clear and sparkling and contained no macroscopic organic matter.

These experiments tend to show that chlorinated lime will markedly reduce the bacterial count in water and in strong enough dilutions render it safe for drinking purposes. In case of an emergency it may be used as a quick, cheap, and fairly efficient way, where no other means are at hand, to render suspicious water safe.

As a general rule if one gram of chlorinated lime, containing approximately 30% of available chlorine, is thoroughly mixed in a liter of water and enough of this mixture, to make one part of chlorinated lime to 200,000 parts of water, is added to clear water which is intended to be used for drinking purposes, and this water allowed to stand for at least 20 minutes after having been thoroughly shaken, the water so treated may be used with impunity for drinking purposes.

Digitized by Google

THE VALUE OF MEDICAL STATISTICS.

By First Lieutenant SANFORD W. FRENCH, Medical Corps, U. S. Army.

I HAVE often wondered if medical statistics in general and venereal statistics in particular are ever taken seriously by either military surgeons or civilian practitioners.

There seems to be a great lack of uniformity in the method of properly recording all cases admitted to treatment or the sick-list. Depending upon the zealousness of the medical officers or commanding officers, or both, to keep down the sick-list, men who should be on the sick-list and whose cases should be recorded to obtain a true set of statistics of the station are kept from having to do their duties and also off the sick list by many different arrangements which vary in different posts and commands. To illustrate: In the Statistical Exhibit, Sick and Wounded, June, 1911, Maneuver Division, San Antonio, Texas, there appears a vast difference between the number of admissions to sick report of the various organizations which existed under practically the same conditions of service. Their camps lying side by side so closely that it was difficult to tell where one regiment ended and the next commenced; all using the same water supply; disposing of sewage and wastes in exactly the same manner; exposed to the same amount of sun and weather; doing the same amount of drills and field work; eating food from the same sources of supply, and, except for having different commanding officers and different medical officers, one large command. One regiment showed an admission rate of approximately 140 per 1,000, while the regiment right next to it showed an admission rate of approximately 40 per 1,000. The reason for this great difference is explained by the fact that in the first mentioned organization, all men who were not physically able to do all their duties were admitted to the sick-list and their cases recorded. In the second case, men were relieved from all duties when physically unfit by marking the company sick-report in one way or another. For example, "Duty—excuse drills." That meant to the company commander that the man was physically unfit to perform his duties and was to be excused from these duties but not to be

Digitized by Google

credited with a day lost as sick. The man was actually physically unfit for duty, was being treated at the regimental infirmary, but his case was not recorded and did not count as an admission. This is one illustration of the viewpoint taken and of the means used to keep down the sick-report. There were many other cases conducted in a similar way with the same object in view.

It is a matter of much pride to conduct the medical department of a regiment to show as small a loss from sick and wounded as possible but, for comparison and the formulation of statistics, it shows a great lack of uniformity, which seems only amendable to more stringent regulations in regard to the admission of sick and wounded and the recording of ALL cases unfit for all duty. The remark was often made by persons who read the medical statistics from month to month that this or that regiment was particularly healthy or vice versa. That particular condition of health existed principally on paper.

The same condition exists as regards venereal statistics. At some posts all venereal cases which come under observation of the medical officer are recorded, whether the patient is retained at the hospital for treatment or is treated while performing his duties. At other places, men are treated for venereal diseases and their cases are not recorded unless their condition actually requires them to be in bed in the hospital. With some it is a court-martial offense to be discovered with a venereal disease, while others welcome cases to the hospital in order that they may be properly treated.

If statistics are considered of any value whatever, why not have statistics that show THE ACTUAL STATE OF AFFAIRS IN ALL CASES, AT ALL TIMES AND AT ALL PLACES?

It has not been my desire or intention to criticise or question anyone for their particular views or methods of conducting the affairs of their respective departments, but, for the value which true statistics would present to the medical profession at large and especially the medical officers of the Army and Navy, this plea for a uniform method of recording cases alike to show a true and uniform state of health and sickness at all places and at all times, is earnestly made.

Digitized by Google

ADVANTAGES OF AN ACCEPTED PLAN FOR LATRINE BOXES.

By Major WILLIAM LYSTER, Medical Corps, U. S. Army.

THE demonstrated efficiency of the latrine pit system in the recent maneuver division, foreshadows its popular vogue for future service in the semi-permanent camps of Regulars and Militia.

That much of its efficiency depended upon the thorough and frequent inspections of both line and medical officers is known to all who saw this camp. The system was not automatic for besides an attendant to care for it after the pit had been dug, it was kept up to its high pitch of efficiency by the sanitary inspections.

The weak point was the danger from the fly that could enter and escape therefrom. During the "burning out," flies were absent, but shortly after the box was in place and the pit in use flies, when present at all, could be observed seeking entrance, and if even small crevices existed could be seen within upon looking into the box.

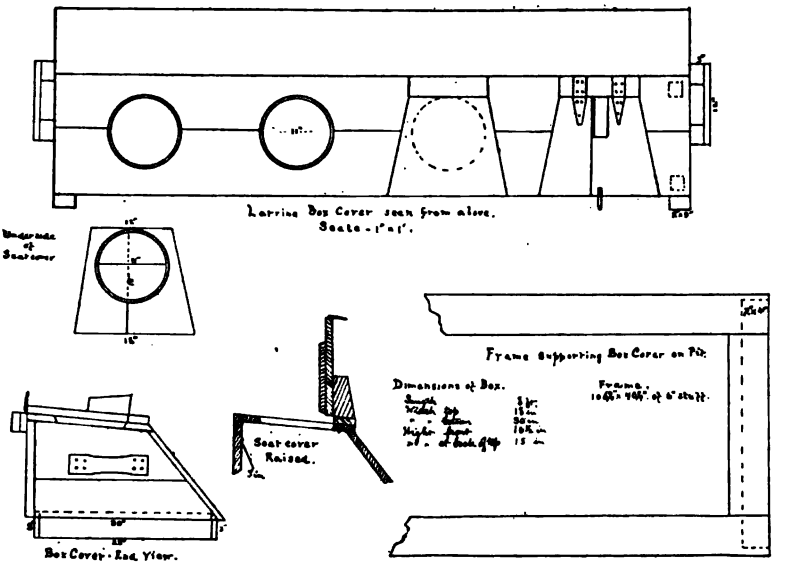
The principal difficulty in the working of the system seemed to be the exclusion of the fly. The boxes in use bore evidences of the struggle to render them fly proof by the patches of tin, wood, canvas and leather fastened upon them.

The primary fault, thus causing most of the unnecessary work, was the poor construction of the box. Unseasoned lumber soon warped. It was not tongued and grooved as it should have been.

The plan of the box was faulty, being narrow and thus restricting the width of the pit to be covered. This has been commented upon by the sanitary inspector, Major Straub, in his report. The boxes were too long and consequently too heavy and thus were racked, and opened seams, when handled as they had to be daily. Other minor faults existed that could all have been remedied had suitable plans been available at the place the boxes were made. Skilled labor was not necessary, nor was it probably used in making most of the boxes.

A plan of a latrine box that has been found satisfactory in these essentials should be in the hands of every organization commander

Digitized by Google


Latrine Box Cover seen from above.
Frame supporting Box Cover on Pit.
Dimensions of Box.
Seat cover Raised.
Box Cover - End View.

as well as in the office of the Quartermaster. Then when lumber is dumped in front of his company the Company commander can have put together in a few minutes a box that will be the duplicate of any other in the regiment, or of those constructed by the employees of the Q. M. Department, and with which his men will be familiar and know how to care for.

The fly must be excluded all the time from the pit. To do this the box is essential; that is a well made and properly adapted box.

It should be made of fairly seasoned lumber, tongued and grooved; if the latter is not available the cracks must be covered on the *outside* with battons at the time of making. It must be wide enough to permit a reasonable width to the ditch thus facilitating the digging, and by permitting width lengthening the life of the pit.

The box must make a close joint with the ground and be provided with covers to the seat openings.

Any other features that can be incidently added are well enough but these are essential to the exclusion of the fly.

Two principal features mark the plans suggested here, both of them tried out at the maneuver division.

First. The well made box must have a *frame* to rest upon otherwise the point of contact at the ground will be so irregular

Digitized by Google

that flies may enter. The frame also prevents the wearing away of the edge of the pit with the consequent precipitation of considerable amounts of earth into it, rapidly filling it. To hold the boxes on this frame and exclude flies a strip of board four inches wide is nailed one inch inside the lower edge of the box thus projecting clear three inches, and when on the frame is just inside of it.

Second. The boxes are not over eight feet long and containing four seats, are easily handled and less readily racked and warped when made in sections. Two or more may be used in line on a common pit to meet the necessities of a smaller or larger command. A board handle is added to each end to more readily move and replace the box.

A slope of one and one-half inch to the back is given the top to drain away rain and wash water, and the seat cover made larger that the seat may be kept dry. As covers to the latrine shelters are undesirable except in continued rains, this feature will be appreciated by the user. A block at each end of the upper edge of the front is nailed on, that when removed from the trench the front edge may not be soiled by resting on the ground and so give no excuse for men to stand on the box when using it.

The material cut away in making the holes should be utilized to re-inforce the seat covers and make more difficult the entrance of flies. A piece of "two by four" six inches long nailed to the upper surface of the seat cover prevents it standing open after the use of seat as the cover cannot be opened to a right angle.

A piece of wood or tin about eight by ten inches should be fastened to the inside of the front of the box opposite each seat at an angle that allows the urine thrown against it to fall clear, into the pit.

The lumber used will be 7/8 inch stuff in 10 inch and 8 inch widths. This will reduce the amount of hand sawing required. The only rip sawing being to obtain four inch strips for the portion of the box that sets in the frame. The frame material is six inch widths 7/8 or 1 inch thickness and unplained. Two by fours will be required for the frame to hold it together and to take the weight off the box over the pit. Enough earth is removed to sink the two by four, thus letting the frame flush upon the ground.

Once in position the close joint between the earth and the frame and the box renders the pit secure from flies if the covers are kept down when the box is not in use.

Digitized by Google

By reducing the size of the box in all dimensions; its weight is reduced, and it is still large enough; it is more easily built and handled and less lumber is required.

Boxes made on such plans would simplify the work of attendants and sanitary inspectors materially.

The galvanized iron troughs for urinals, but smaller than those in the "Reed Trough System" should be provided. They should empty by a pipe soldered into one end and which is long enough to enter through a hole bored in the end or back of the box and not through a seat, as using the seat hole for the urinal reduces the seating capacity per company.

It is believed a sectional box as described above has for a semi-permanent camp many more advantages than the Havard knock down latrine box, and is from its firm construction better adapted for continued use. Neither would be used by moving troops. The width of the Havard box necessitates an undesirably wide ditch and requires more lumber when surrounded by shelter

Digitized by Google

ENTERO VESICAL FISTULA OF AMEBIC ORIGIN.*

By First Lieut. CHARLES G. LEVISON, Medical Reserve Corps, U. S. Army.

As entero vesical fistulae are infrequent, the following history is reported to call attention to a condition that was somewhat complicated.

Patient J. T. M. 38 years of age, U. S. Navy. Family history was negative.

Previous illness. In 1899 the patient had an attack of pneumonia that necessitated relief from duty for six months.

In 1900, while in the Philippines, he had an attack of what was supposed to be typhoid fever. Besides this attack he gave no history of any disease suggestive of amebic infection. He has never suffered from diarrhea, but on the contrary has been more or less constipated.

Present illness. About the middle of May, 1909, the patient experienced after eating, discomfort in the lower part of his abdomen in the supra-pubic region. Fever was present.

The urine was quite clear.

Two weeks later he suffered severely from abdominal pains while at stool; his bowel movements were numerous and diarrhoeic in character.

One day he collapsed while on the toilet on account of a severe pain in the left iliac region. He was sent to the Naval Hospital for observation.

On June 4th, which was about two weeks after the beginning of the attack, the patient felt something rupture in his left side. Shortly after the urine became loaded with pus.

During this period he was having constant pain in the left half of the abdomen. Fever was persistent.

June 19. The patient discovered feces in his urine. He also recognized that he was expelling gas through his urethra. He would experience a sharp pain in his left side that he stated was caused by the passing of flatus into his bladder. Later the gas would be expelled through the urethra.

July 2. The patient came under the care of the writer.

Examination:

Abdomen. Palpation of the abdomen revealed a mass at the region of the sigmoid. Peristaltic contraction of the thickened intestine was evident. Palpation of the other regions of the abdomen was negative.

*Read by title at the 20th Annual Meeting.

Digitized by Google

Rectum. The prostate was not enlarged but a mass somewhat smooth in outline and about the size of a mandarin orange could be felt occupying a position to the left of the rectum and extending up as far as the finger could reach. The mass was painful to pressure. Flucuation could not be elicited.

Cystoscopic examination. This was made by Dr. Henry Meyer who discovered an opening in the upper part of the bladder that corresponded to the situation of the mass that could be felt in the rectum. Feces were seen passing through this opening into the bladder. The region surrounding the opening was edematous and very hyperemic.

Blood examination. Leucocytes 7100; Polys 59%; Eosinophiles 4%.

Examination of the feces and stools revealed the presence of quantities of amebæ of the motile and encysted forms.

July 11. Patient's condition was very grave.

The temperature ranged from 102 to 104; the pulse was 120 and was very weak.

The liver was growing larger daily; it extended to the nipple and could be palpated three finger breadths below the costal margin.

July 12. The patient had a severe chill.

The feces were found to contain numerous amebæ of the degenerated and encysted forms. Many monads in the motile and the resting stage were seen. Mucous, pus and crystals were present.

Diagnosis. It was evident from inspection and from clinical signs that an entero vesical fistula was present.

Etiology. As malignancy is often a factor in the production of fistulae, it was considered, but was excluded on account of the history presented.

Tuberculosis was ruled out after a careful examination of the feces and the urine for tubercle bacillus which was not found. Animal inoculation was made and in the course of time this was found to be negative.

As the examination of the urine and the stools revealed the presence of quantities of amebae, Dr. Long, of the U. S. Marine-Hospital Service, was called in consultation and he stated that in his opinion the process was due to an amebic infection.

Regarding the nature of the infection: as diverticulitis of the sigmoid is not an uncommon condition, and as the symptoms corresponded more or less to those produced by diverticulitis, the following diagnosis was made:

Entero vesical fistula caused by a perforation of an acute diverticulitis into the bladder. The diverticulitis being the result of an amebic infection.

Digitized by Google

On account of the patient's lowered resistance serious surgical intervention was out of the question and it was thought that it would be best to divert the fecal current from the bladder by making a colostomy of the ileum. Opening the abdomen for the purpose of exploring was considered inadvisable on account of the unfavorable condition of the patient.

July 13. Operation. Dr. Long and Dr. Austin of the U. S. Marine-Hospital Service and Dr. McKenney were present. Dr. Barbat kindly assisted at the operation.

Operation. A gridiron incision in the right iliac region was made and a loop of ileum about four inches long was withdrawn; the peritoneum was attached to the bowel in the usual way and the loop of intestine was allowed to hang outside of the abdomen. Nothing further was attempted as the patient's condition was very grave.

Inspection of the intestines showed them to be somewhat thickened and very hyperemic.

In closing the abdomen, care was taken that the peritoneum and the abdominal wound were not sutured too tightly to obviate any strangulation of the intestine. The following day the gut was opened at the tip of the loop. Before this was done a small opening was made in a piece of rubber dam which was drawn over the loop of bowel to its base.

The rubber was drawn over the bowel just as a dentist employs the rubber while filling a tooth. The piece of rubber lay closely applied to the abdominal wall and it was large enough to reach into a bucket at the side of the bed.

During all the time that the patient was confined to his bed, despite the irrigations and the numerous bowel movements which were the consequence of the ipecac treatment, the skin of the patient's abdomen was never moistened or soiled and he never suffered the annoyance of being saturated with feces. Afterwards when he was up and about, he placed absorbent cotten over the loop of intestine and with the rubber in position and folded over the cotton which was held in position by an abdominal binder, he was able to attend to his affairs without suffering the inconvenience that is experienced by the patient who carries an artificial anus of the ileum.

Digitized by Google

July 16. Temperature, 103; pulse, 102; respirations, 30; leucocytes, 15,000; Polys, 75%.

Dr. Long found that the margin of the liver reached beyond the nipple line and extended three finger breadths below the costal margin. As he believed a liver abscess was in process of development, he administered 10 grain doses of ipecac in salol coated capsules.

From July 18th to the 23rd the patient was under the influence of ipecac which was continued to the point of tolerance.

July 25. The liver had receded to practically its normal size; pulse, 80; respirations, 20; the patient was doing very well.

The urine contained numerous amebae as well as hyaline casts.

Quinine irrigations of the rectum and the upper and lower arms of the colostomy were being employed.

August 1. The liver was normal in size.

August 7. The feces were examined and no amebae found. Monads were absent; a few crystals as well as a quantity of vegetable fibre was present.

August 28. The patient stated that the irrigations still passed from the rectum into the bladder. Colored fluid introduced into the bowel from above made its appearance in the urine, so that it was evident that the opening in the bladder still persisted.

December 1. The patient gained ten pounds during the past month.

December 9. Feces from the colostomy showed no signs of amebae; the urine contained numerous granular casts and epithelial cells which indicated that nephritis was present The condition of the patient was very satisfactory; he has gained about forty pounds during the past six months.

January 3, 1910. Dr. Henry Meyer made a cystoscopic examination which showed that the bladder had completely healed; the urine was quite clear and there was no sign of feces discoverable, so that it was evident that the opening in the bladder had entirely healed.

In view of this situation it was decided to close the colostomy.

There was nothing unusual about the operation. The loop of intestine that occupied the opening in the abdominal wall was resected and the ends of the bowel were invaginated with a purse string suture and a lateral anastomosis was made.

Digitized by Google

The intestines were normal in appearance and the hyperemic condition that was present at the first operation had entirely disappeared.

At the operation, the appendix which was large and succulent was removed and to the surprise of everyone the examination of the scrapings showed amebae to be entirely absent.

The abdomen was closed and with the exception of a few complications that will not be discussed here, recovery was complete.

December 30. This was one year after the close of the colostomy, and an examination of the patient showed that he appeared to be quite restored to health; the urine was clear and repeated examination of the feces after the administration of saline cathartics revealed no evidence of disease.

No intestinal organisms other than usually found in the normal intestinal tract were present. The liver was not enlarged.

May 15, 1911. Two years after the time that he was first seen, the patient was carefully examined for a number of days. Despite the fact that the examination was most exacting, he was pronounced entirely cured.

Remarks. This case is of interest because the patient seems to have entirely recovered from his amebic disease.

In view of the examination of the appendix scrapings which were made one year subsequent to the colostomy, at the time the appendix was removed, one is warranted in assuming that amebiasis has been cured.

Regarding the behavior of the amebiasis Dr. Long stated to the writer that he was impressed with the fact that the amebae had disappeared more quickly with the colostomy than had been his experience under similar conditions where an appendicostomy had been performed.

Prompted by Dr. Long's observations several colostomies were made subsequently for amebic disease by the writer, but it was not easy to arrive at a definite conclusion as to whether the ameba disappeared any quicker than was the case where the appendicostomy was made.

A point of interest was the manner in which the colostomy was performed. The loop, as described below, made it possible for the patient to go about without having the disagreeable experi-

Digitized by Google

ences incident to this condition. There was no odor or soiling and the patient was comparatively comfortable at all times.

Care must be observed not to suture the peritoneum or the abdominal tissues too tightly around the intestine, otherwise edema and strangulation will result which will cause the gut to slough with the consequent formation of an opening in the intestine that will be on a plane with the abdominal wall.

When this occurs the intestinal contents will escape under the rubber cloth and all of the advantages of the operation will be lost. It is important not to have the opening in the rubber too small otherwise the bowel loop may necrose.

The patient with his colostomy was demonstrated before the San Francisco County Medical Society and he stated to the members that during the entire period in which the colostomy was functionating the skin of the abdomen was never soiled.

Digitized by Google

CALOMEL IN GONORRHOEAL PROPHYLAXIS.

By Assistant Surgeon REGINALD B. HENRY, U. S. Navy.

FOR the past six months (Feb. 1st-Aug. 1st, 1911), the use of calomel ointment, as a gonorrhoeal prophylactic, as recommended by Colonel L. M. Maus, Medical Corps, U. S. A., has been the only method employed aboard the U. S. S. Rainbow, on the Asiatic Station, and the results have been most gratifying.

During this period there have been 529 admitted exposures, with the development of only four cases of gonorrhoea; of these, one denied exposure and did not receive the treatment, two received it late, more than twelve hours after exposure, so that only one remains to be considered a failure of treatment, a percentage of .189.

With a crew of nearly two hundred, there is not at the present time a man undergoing treatment for gonorrhoea, a condition unknown prior to the use of this method of prophylaxis. In addition to the efficacy of calomel, there are the special advantages of cheapness, cleanliness, and absence of irritation.

The ointment, as used, was adopted after considerable experimentation by Hospital Steward H. Brundage, U. S. N., and is as follows:

Calomel	50 gms.
Liq. petrolatum	80 C. C.
Adeps lanae (hyd)	70 gms.

This is injected with an ordinary glass penis syringe.

Digitized by Google

CURRENT LITERATURE

Titles marked with an asterisk (*) are abstracted below.

FRANCE.

Archives de Médecine et Pharmacie Militaires.

March, 1912.

1 *Studies in the Etiology of Diseases of the Soldier. Labit.
2 Traumatism of the Vault of the Skull. Pous and Capdevielle.
3 The Iodine Compounds of the Syrup of Iodotannin found in Military Hospitals. Courtot.

1. **Studies in the Etiology of Diseases of the Soldier.**—Venereal Diseases; for 1908. Admissions per 1,000.

	France.	Algiers.
Syphilis	5.8	19.2
Chancroid	1 8	17.8
Gonorrhoea	17.0	50.6
Total	27.5	87.6

H. J. NICHOLS.

Archives de Médecine et Pharmacie Navales.

March, 1912.

4 The Crisis in Epidemics of Acute Dysentery Nostras (Bacillary Dysentery). M. le Dr. Bertrand.
5 *Official Report upon the Organization and Work of the Sanitary Service of the Japanese Navy. Extracts (Continued). Translated from Japanese by M. le Dr. Chemin.
6 Distilled Water on Modern Warships. M. le Dr. Renault.
7 XXII Congress of Medical Alienists, and Neurologists of France.

5. **Sanitary Service of the Japanese Navy.**—The following extracts taken from actual battle conditions, reported by medical officers of the Japanese Naval service, during the late Russo-Japanese War, are of interest.

These directions were issued on the "Shikishima:" 1. Never touch the wounds with the hands; 2, Cover the wounds immediately with red gauze contained in dressing packages; 3, Fix the dressing solidly with triangular bandages; 4, Transport as rapidly as possible to the dressing station.

On the "Fuji." "It was absolutely impossible for the bearers to examine the wounds in the midst of smoke and the rain of pro-

Digitized by Google

jectiles, they had not even time to make use of the most simple apparatus for the transport of the wounded. The role of the bearer should be confined to assistance in case of fracture or section of the members."

Cruiser Kasuga. "It is indispensable to give the bearers some notion of surgery—if not, they will prove useless."

Cruiser Nisshin. "During the combat we certainly cannot expect the bearer to give immediate care to the wounded; while it is not the intention to contest the importance of instruction that is ordinarily given the bearers yet they should minister only in cases of fractures or hemorrhage, transporting other cases as rapidly as possible rather than lose time in applying imperfect dressings."

Cruiser Izumo. "We did not see a single one of the injured transported when the wound was uncovered."

Cruiser Takachiho. "Despite the fact that the little packets, which the bearers carry have been sterilized, their hands are septic and infect the wounds. Besides it is a loss of time to apply such dressings. On account of this it has been directed that those who present grave hemorrhage shall be transported as rapidly as possible without any dressing."

Cruiser Izumo. Speaking of the work of the bearers, the reporter states "Notably they applied the ligatures perfectly, by means of a rubber tube, in cases of comminuted fractures or wounded arteries. In other cases, although they had perfectly applied the rubber tubes, great vessels having been wounded severe hemorrhage supervened."

Cruiser Azuma. "To insure direct hemostasis use was made of compression dressings. In case of severe hemorrhage the bearer was directed to use the rubber tube. In reality this was little practiced."

Cruiser Otowa. "Bearers applied dressings only in cases where transport was delayed or difficult or when numbers of wounded were congregated."

JOHN C. WISE.

Le Caducée.

February 3, 1912.

8 The Service of Stomatology in the Army.

9 *Post Exchanges from the Point of View of Hygiene. Dr. H. Viry.

Digitized by Google

10 The French Hospital in Fez, Morocco.
11 *The Infectious Diseases Prevalent in Fez and Vicinity. Dr. Murat, in charge of the Civil and Military Hospital.
12 Multiple Perforations of Small Intestine by Gunshot (6mm.).

March 2, 1912.

13 Abnormal Children and Soldiers. Dr. Jude.
14. Leprosy in Indo-China. Dr. Jeanselme.
15 The Red Crescent. Dr. F. Guegan.
16 Improvised Soups in Campaign by Means of Broth Tablets.
17 Gunshot Wound of Spinal Cord, with Post Mortem.

March 16, 1912.

18 Impressions from Italy. Dr. E. Laval
19 Hemarthrosis of the Knee, Following Dislocation of the Patella. Dr. Toussaint.
20 *Treatment of Sunstroke. Dr. L. Chastang, French Navy.
21 Tropical Diseases: Yaws, Elephantiasis, Leishmaniosis, Beriberi.
22 Vaccination and Serum Treatment in Plague. Dr. Abatucci.

9. **Post Exchanges from the Point of View of Hygiene.**—Formerly the French soldier who, in garrison, wanted a drink, a piece of pie or any of the many articles necessary to his pleasure or comfort, not provided by a frugal government, had to buy them from the canteen, practically a trader's store. But lately there have been organized exchanges or *mutuelles,* one for each company. Their object is twofold: to teach the value of organization and solidarity, and to keep the soldier in garrison, thus removing him from the temptations of saloon and brothel. The means used are refreshments (including wine, beer and cider, but not distilled liquors), games, reading room, facilities for writing, lectures, theatrical performances, etc. The results have been rather disappointing. The exchanges, installed in each company, often incite men to drink or eat from mere proximity, so that intoxication is not rare. The interior attractions are necessarily limited and soon become monotonous. The necessary supervision is also carried out with difficulty, the more so when, as is commonly the case, there are 10 or 12 *mutuelles* in the garrison. To remedy these objections it is proposed, as common sense suggests, to consolidate the company into battalion *mutuelles.* Thus, with fewer drinking places, less frequently met, the smaller would the temptation be. Consolidation of means and efforts would certainly permit a greater variety of attractions and more

Digitized by Google

efficient management. The men would also be more interested in meeting other visitors than their own comrades. A still much greater and obvious improvement would be to abolish the canteen and embody any of its special features worth retaining in the *mutuelle*.

11. **The Infectious Diseases Prevalent in Fez and Vicinity.**—Three endemic diseases have this year assumed a grave epidemic character. First, malaria under all its forms, quotidian, tertian, quartan and pernicious, making up about one-fifth of admissions. Stagnant ponds and swarms of anopheles mosquitoes are prominent features of the region. Not only was no effort made to drain or petrolize these ponds, but the troops were camped in their proximity. Second, typhoid fever from badly polluted water and utter lack of house sanitation. Third, dysentery, both bacillary and amebic; of the 78 cases in the military hospital, 33 were bacillary and 45 amebic. Smallpox and syphilis are also quite prevalent. No systematic vaccination has as yet been attempted, and the price of salvarsan is beyond the means of the hospital. There is no plague and no cholera.

20. **Treatment of Sunstroke.**—For many years Dr. Chastang employed cold baths and frictions with ice, the treatment still most in vogue to-day. He seldom was satisfied with the results and often noticed dangerous complications and relapses. Now he invariably treats sunstroke by hot baths and vigorous external stimulation, a mode of treatment which has never failed him. The sunstruck, unconscious man is plunged for 5 to 10 minutes in a bath at 38° C. gradually raised to 40 or 42; cold affusions are made to the head, and energetic frictions or flagellation applied to the precordial region. Very promptly the respiration is improved and regularized. After removing him from the bath profuse perspiration follows; at this time he should be vigorously fanned. If the pulse and breathing again become irregular, the bath is repeated. Dr. Chastang has thus treated twenty cases with entire success and no other medication than injections of ether and caffein.

V. HAVARD.

Digitized by Google

GERMANY.

Deutsche Militärärztliche Zeitschrift.

March 5, 1912.

23 Address by His Excellence Surgeon General Prof. Dr. v. Schjerning on February 17, 1912.
24 Concerning Deterioration in Canned Meat. George Mayer.
25 The Question of the Disinfection of the Skin with Tincture of Iodine. Kutscher.
26 The Question of the Fractures of the Sesamoid bone of the Great Toe. Wilhelm Wolf.
27 Construction of a Simple and Cheap Measure for the Hardness of X-ray Tubes. Broese.

March 20, 1912.

28 Mechanical Asepsis and the Treatment of Wounds with Mastisol in War and Peace. W. v. Oettingen.
29 Pignet's Formula. Dannehl.
30 A Simple Compression Screen for X-ray Room. Zubinski.
31 *Preliminary Yearly Sick Report of the Imperial Prussian Army, Oct., 1910-Sept., 1911.
32 Regulations of National Insurance. W. Fornet.

31. **Preliminary Yearly Sick Report of the Imperial Prussian Army.**—Total strength, 552,940; admissions, 589 per 1,000; deaths, 1.9 per 1,000. Venereal diseases; admissions, 19.9 per 1,000.

H. J. NICHOLS.

GREAT BRITAIN.

Journal of the Royal Army Medical Corps,

March, 1912.

33 Richard Wiseman, Sergeant-Surgeon to Charles II. Major H. A. L. Howell, R. A. M. C.
34 Trypanosome Diseases of Domestic Animals in Uganda. Col. Sir David Bruce, C. B., F. R. S.; Capts. A. E. Hamenton, D. S. O., and H. R. Bateman, R. A. M. C., and Capt. F. P. Mackie, I. M. S.
35 Apyrexial Malaria Carriers. Major G. E. F. Stammers, R. A. M. C., and Capt. G. I. Davys, I. M. S.
36 *A Small Epidemic of Typhoid Fever in Connection with Specifically Infected Flies. Major E. W. W. Cochrane, R. A. M. C.
37 The Effect of Physical Training on the Pulse-Rate. Capt. J. A. Balck, R. A. M. C.
38 Practical Hints on Marching and Health on Active Service. G. Fahey, Late 88th Connaught Rangers.

Digitized by Google

36. **Epidemic of Typhoid Fever.**—The author states that a small outbreak of typhoid fever occurred in 1911 at St. George's, Bermuda, where the probable carriers of infection were flies. There were 8 cases, and the time of occurrence was as follows: April 15, 24, 27 (2), May 1 (2), 2, 8. Three of the cases were in soldiers. The five civilian cases were in three families. Two of the three soldiers were employed in two of these families. A fatal case of typhoid had occurred at a house 300 yards from the house where the first case occurred in Sept., 1910. Other cases may have occurred in the same locality. A dry earth latrine was used where the fatal case of typhoid occurred. A fly was caught near this latrine on May 3, 1911. It was put in 5 c.c. of sterile salt solution in a test tube, the contents of the tube well shaken for a minute and cultures made. The fly was emulsified and other cultures made. The bacillus typhosus was isolated from the washings. The author believes that cases 1, 2, 3, 4, and 5 were infected by flies from the same place. Cases 6, 7, and 8 were, he believes, secondary to cases 1 and 3. Other flies from other localities tested in a similar manner were negative. Occupants of the house where the infected fly was caught refused to allow their excreta or blood to be examined. The Civil Health Officer was notified. Steps were taken to have the house and especially the latrine cleaned and disinfected. Since then no further cases have occurred in the vicinity.

ALBERT G. LOVE.

The Indian Medical Gazette.

February, 1912.

39 Some Notes on the Proposed Bill to Consolidate and Amend the Law Relating to Lunacy. Capt. M. J. Shaw, I. M. S.
40 Appointment to the Service Examinations. Lieut. Col. D. G. Crawford, I. M. S.
41 Hypnotism and Psychotherapy. Capt. V. B. Green Armytage, M. B., I. M. S.
42 Air Movement in Association Wards. Col. W. G. King, C. I. E., I. M. S.
43 *Intestinal Parasites in the Wardha District. Capt. M. Foster Reaney, M. B. (Lond.), D. P. H., I .M. S.
44 Sanitation in the Plains. Capt. L. Reynolds, I. M. S.
45 *Syphilis in Tibet. Lieut. R. F. D. MacGregor, I. M. S.

43. **Intestinal Parasites in the Wardha District.**—The author examined the stools for intestinal parasites of 362 individuals.

Digitized by Google

Of this number he found 37 infected with ankylostoma, 14 with ascaris lumbricoides, 3 oxyuris, 2 trichocephalus dispar, 3 with hymenolepis nana, and 3 with taenia saginata. In conclusion the author states that the results show that infection with intestinal parasites, especially the ankylostoma duodenale, is common in the Wardha District of the Central Provinces, though the degree of infection is low and nothing compared with that found in damp parts of India and Assam.

45. **Syphilis in Tibet.**—The author states that the most common disease in Tibet is undoubtedly syphilis. Syphilis is very prevalent, though gonorrhoea and soft sores, are comparatively uncommon. From Jan. 1 to Aug. 31, 1911, 439 persons attended the Civil Hospital. Of these 144 were venereal cases.

ALBERT G. LOVE.

RUSSIA.

Wojenno Medicinskij Journal.

August, 1911.

46 Report of the Surgical Department Aschabadsk Local Hospital for 1910. R. A. Zander.
47 *Case of Prolapse of Lung in Penetrating Chest Wound. W. A. Kaminin.
48 Parisian Neurologic Clinics. M. L. Astwatsaturow.
49 A Case of Acute Yellow Atrophy of the Liver. L. S. Sluchewski.
50 The City of Saratow from a Sanitary-Tactical Standpoint (Continued). W. W. Zagluchinski.
51 *Evacuation into Trans-Baikal of the Sick and Wounded in the Russo-Japanese War (Concluded). G. O. Kowarski.
52 Introduction of Volatile Substances into the Middle Ear. K. B. Steinman.
53 *Cure of Grave Syphilis by Arsenic. W. E. Larionow. (Not Salvarsan.)

47. **Prolapse of Lung in Penetrating Chest Wound.**—Prolapse of lung after a stab-wound is thoroughly discussed by Kaminin in connection with a case observed by him. The patient, a farmer aged 26, was brought to the author's hospital the day after receipt of a knife-wound in the left side. The wound was 10 centimeters long, between the eighth and ninth ribs with its center in the anterior axillary line. A tumor of the size of a hen's egg protruded through the wound, resembling in color and

Digitized by Google

structure lung tissue. The prolapsed lung was quasi-incarcerated in the wound. Right lung showed vesicular breathing, left same, but laterally showed pneumothorax Heart slightly displaced to the right, pulse 90, full and strong. Respiration increased and frequency, shallow.

The following day operation under morphin-chloroform anesthesia. Wound enlarged in front and behind, eighth rib resected in locality of wound to the extent of five centimeters. The prolapsed portion of the lung was released without undue force, ligated in sections and amputated with scissors, as was also protruding fatty cellular tissue. The raw surface of the lung was cauterized with Pacquelin instrument and fixed to the parietal pleura by sutures. Wound diminished by sutures. Drainage.

Next day. Patient had chills, pulse 96, respiration 28. In spite of rather high temperature for a few days, excellent general condition. In less than a month discharged cured.

51. **Evacuation into Trans-Baikal of the Sick and Wounded in the Russo-Japanese War.**—The MILITARY SURGEON, September, 1911, page 333.

53. **Cure of Grave Syphilis by Arsenic.**—Grave syphilis cured by sodium arsenate injections after failure with Hg. and KI. is illustrated in the most convincing manner in at least this one case.

The patient, a young soldier contracted syphilis two years previous to entering the army. He was sent on January 5 (18), 1910, to the regimental infirmary with complaint of pain in the nose and throat. He showed ulcerations of the tonsils, arches of the soft palate and posterior pharynx, excoriations and incrustations of the nose, general adenopathy and a scar on the penis. Diagnosis: tertiary syphilis. Treatment 21 inunctions of 4.0 Hg. ointment and after 10 days since his admission a tablespoonful of KI. (8:200) t. i. d.

On account of the appearance of pain in the right ear and mastoid process he was transferred to the Odessa Military Hospital. Here it was learned that previous to his recruitment he had taken two courses of treatment, had received 30 hypodermic injections of mercury and had been ill for the past eight months.

Digitized by Google

In the hospital in addition to the above named symptoms and findings were added: mucous membranes pale, voice snuffling, external otitis (right) with suppuration, uvula deviated to the left, the entire posterior pharynx containing many mucous patches and ulcers. After 11 inunctions and local treatment of the ear, the ulcers cicatrized, papules and suppuration disappeared. Since his discharge recurrence with general symptoms showing serious constitutional changes. Treatment: KI. with syrup iodide of iron. But the pains increased, involving the head, the ulcerations returned and the patient re-entered the military hospital. Here 8 inunctions, warm baths and 1 injection of salicylate of mercury were given and the patient developed pronounced local and general symptoms of mercurial poisoning, and in spite of prolonger treatment with iodine preparations the patient grew worse, with bad circulation (pulse 120, weak), vertigo, extreme weakness, etc.

The author then decided to give injections of a 1% solution of sodium arsenic, beginning on June 18 (July 1) 11 injections were given in increasing doses (1-5 divisions of a Pravac syringe). Objective and subjective phenomena disappeared entirely except a general weakness, for which the patient was given a year's furlough.

The author does not ascribe an antiluetic property to arsenic but believes that it is useful in certain forms of syphilis especially when nutrition is below par and considerably impaired by previous mercurial medication, especially since it produces a decided leucocytosis and improves nutrition.

September, 1911.

54 Report of the Surgical Department, Aschabadsk Local Hospital for 1910 (Concluded). R. A. Zander.
55 Case of Rare Trauma. E. S. Bonvech.
56 Method of Cure by Diathermia. L. Th. Kotovich.
57 A Case of Acromegaly. L. S. Kreindel.
58 The City of Saratow from a Sanitary-Tactical Standpoint (Concluded). W. W. Zazluchinski.
59 *Medico-Military Affairs in Germany and Austria-Hungary for 1908-1910. W. Jeltujshew.
60 The Problem of the Cure of Syphilis by Salvarsan in the Army. A. P. Jebunjew.
61 A Case of Gumma of the Naso-pharynx and Larynx Cured by Salvarsan. N. A. Ussachew.

Digitized by Google

59. **Medico-Military Affairs in Germany and Austria-Hungary.**—Military sanitary affairs in Germany and the Austrian Empire are ably reviewed by the author in a manner showing the earmarks of general staff work (sanitary division), though no rank and title appear under the author's name. The article seems a reprint from a general staff publication on foreign armies published in 1911. The work is based a good deal on "Lobell's Yahresbericht," a report accessible to the abstracter.

As this article offers an opportunity for comparison with our own Army, the main features may not be without interest.

Germany. In 1908 the personnel was: 1 General staff physician of the army (=Surgeon General in United States), 4 sanitary inspectors (physicians general), 17 corps physicians, 1 chief of department in the war ministry, 1 assistant director at the Emperor Wilhelm Academy (army medical school), 40 division physicians, 364 senior staff physicians, 451 staff and 852 assistant (junior) physicians. Detached: 2 with the Wilhelm Academy, 23 with the corps staffs, 1 in the military sanitorium at Nanheim, 1 at Landecke. In 1910 there was a shortage in personnel amounting to 41%.

In 1910 military physicians were admitted as members of courts of honor, and not excepting even those who were retired "with uniform." Of importance is the establishment of monthly courses of instruction for higher medical officers in Berlin since 1908. (Note: The German universities have courses especially for physicians of the reserve—an organization not to be compared with our own inactive reserve corps.) Under-graduate instruction has been given at the Wilhelm Academy since June, 1910, to 420 future medical officers, of whom 300 were quartered in a series of buildings. Course lasts 5 years. A practical sixth year is spent at the Charité Hospital.

Much attention has been paid since 1909 to diseases of the teeth, a special course in dentistry forming part of the curriculum at the Academy. One year volunteer soldiers having dental training (M. Ds.) are attached as dentists to hospitals. All larger military hospitals now have dental departments.

In Detmold and Muñden two hospitals for diseases of the chest only have been established. Here all soldiers sent from the line with the diagnosis tuberculosis are taken care of as are such as are relieved for that cause from active service. Every year

Digitized by Google

"Kurorta" (watering-places) are added for army use—there now being a total of 492—32 of which are devoted to tuberculosis. In 1909 a convalescent home for officers was opened in Taunus. Nursing is done by "sisters" of the Red Cross—wards being under the supervision of sanitary sergeants-major. Germany has 11 convalescent homes for privates and non-commissioned officers.

In large garrisons transportation of sick is done by automobiles (Metz, Strassburg, Berlin, Cologne and Darmstadt). These serve also for the purpose of training. Automobile ambulances are planned also in the near future for maneuver fields, situated at some distance from the barracks.

In August, 1908, new regulations were published. The sanitary battalion has 16 litter bearers, wearing a special uniform. Sanitary companies have each a field kitchen. Auxiliary sanitary trains are kept in readiness even in time of peace. To the staff of field-lazaret personnel is added a dentist and each corps-staff can boast of a dental technician (one doing prothesis only). A physician specializing in mental diseases and orderlies trained to take care of insane are added to the corps staff (a feature which would have proved very useful in the Russo-Japanese War), 3 of the 24 transport wagons of a sanitary etappe-depot are light truck automobiles. Acetylene lamps of a uniform type are prescribed for the illumination of all field sanitary establishments. Many new regulations have been published concerning the packing, preservation and organization of sanitary materiel, these details even applying to Roentgen work in the field.

Voluntary aid (Red Cross) is not intended for the battlefield. The purpose of "volunteer sanitary columns" is to aid the wounded and sick in enabling them to return to the field, in the evacuation of these soldiers to their homes, affording aid to occupants of trains at railroad stations and the care of sick and wounded in hospitals in the home territory. Sanitary columns are organized under the statutes of the Red Cross, but can form part of military societies. In time of peace they aid in epidemics and catastrophes which is part of their military training. A uniform is issued them in time of war. They are then subject to military laws and allowed pension if disabled in the line of duty. They are under the supervision of a "military inspector of volun-

Digitized by Google

teer sanitary organization," attached to headquarters and of delegates sent to etappe points.

The sanitary columns form:

(a) Lazaret detachments, in the "Hospitals of the front."

(b) Transport detachments—to remove wounded and sick from the frontal hospitals to etappe points in the rear.

(c) "Accompanying" detachments, assisting in the evacuation on trains, steamers, from dressing stations and field hospitals, and

(d) Detachments for the transport of materiel collected by voluntary donations.

Austria-Hungary. In 1909 there was a great scarcity of military physicians. Infantry regiments which should have had, according to law, five had only two physicians, cavalry regiments instead of three had two or even one physician. All sorts of measures have been published to encourage physicians to adopt a military career. In this same year the status of sanitary non-commissioned officers was fixed. All hospitals corps sergeants of the reserve and land defense have been recalled for a special course.

Some reorganization was effected. An infantry division now commands (a) wagon-aid-etappe, (b) station for slightly wounded, (c) dressing station, and (d) wagon etappe for wounded. Each cavalry division is increased by two additional horse-drawn ambulances. Special regulations have been issued for brigades and mountain brigades. The old field hospital of 600 beds is divided into three field hospitals with 200 beds each. A field hospital for war in the mountains can be divided into two independent field hospitals (100 beds each). The same change holds good also for the mobile reserve hospitals. Each institution, attached to a corps, is designated by a number.

G. M. BLECH.

Digitized by Google

REVIEWS

A MANUAL OF FIRST AID FOR LAYMEN, with special reference to industrial accidents. By Ernest A. Wells, M. D., Associate Medical Director, Aetna Life Insurance Company; formerly House Surgeon, The New York Hospital; Assistant Attending Surgeon, Hartford Hospital; Member American Medical Association, American Academy of Medicine, etc. Published by Aetna Life Insurance Company, Hartford, Conn.

This small pamphlet is an evidence of a very important work which has been inaugurated by some of the insurance companies of the country. These companies are conducting an educational campaign against disease and injuries. That is to say, by means of pamphlets similar to the one under review, bulletins, etc., they are attempting to inform their policy holders, and other persons incidentally, how to prevent disease by teaching sanitation and the bad results of accidents through their instruction in first aid to the injured. Some of the accident insurance companies have also issued some very valuable bulletins relating to the prevention of accidents in the various industries.

It is too early perhaps to form any opinion as to the value of the results attained. With some companies, at least, they are known to have much disappointed expectations.

Returning to the subject of first aid to the injured, however, to which the present manual is devoted, it is believed to be rather doubtful if this subject can be taught to any advantage in this manner. First aid involves the exercise of certain mechanical procedures which, simple as they are, cannot well be learned from a book alone. Moreover, without a competent teacher it is not altogether impossible that the first aid student may become a menace rather than an assistance to his community. Dismissing this question, the book itself must be considered. In parts it is excellent, but unfortunately some serious errors have been allowed to creep in. At the present stage of our surgical knowledge it is certainly wholly unjustifiable to advocate the washing of wounds as a first aid measure. The author would appear to appreciate this from some of the statements he has made, yet

Digitized by Google

we find this discredited method of treatment prescribed. It is also noted that the author has sometimes written over the heads of his audience, an error into which it is extremely easy for the physician to fall.

THE TREATMENT OF FRACTURES: With Notes Upon a Few Common Dislocations. By Chas. L. Scudder, M. D., Surgeon to the Massachusetts General Hospital. Seventh Edition, Revised and Enlarged. Octavo volume of 708 pages, with 990 original illustrations. Philadelphia and London: W. B. Saunders Company, 1911. Polished Buckram, $6.00 net; Half Morocco, $7.50 net.

This work is so well and favorably known to our readers that any extended review would be superfluous.

This, the seventh edition, fully maintains the reputation made by previous editions. It differs chiefly from its predecessors in containing those facts which during the past three years have been accepted as important in the treatment of bone injuries. A chapter has been introduced on the operative treatment of fractures. The value of the X-ray pictures has been enhanced. A considerable amount of new material has been added on a number of different subjects.

This work continues to be one which should be in the hands of every practitioner.

THE SURGICAL CLINICS OF JOHN B. MURPHY, M. D., AT MERCY HOSPITAL, CHICAGO. Volume I, Number 1. Octavo of 133 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Published Bi-Monthly. Price per year: Paper, $8.00; Cloth, $12.00.

This, the first number of the "Surgical Clinics of John B. Murphy, M. D.," represents a new departure in medical publishing. It is a departure, however, that must appeal at once to the medical man, because of its extremely practical clinical teaching.

These "Clinics" are published just as delivered by Dr. Murphy, being reported verbatim by an expert medical stenographer. In this way they retain all that individual force and charm so characteristic of the clinical teaching of this distinguished surgeon.

These "Clinics" are being issued in serial form, one number every other month (six numbers a year). Each number is to

Digitized by Google

contain about 130 octavo pages, illustrated. They are sold only by the year.

Doubtless this important addition to clinical teaching will be much appreciated by surgeons everywhere. Dr. John B. Murphy is so well known to surgeons throughout the world that it is almost superfluous to say that any contribution on the subject of surgery made by him is of great value. The history of each case is given, then follows the comment of Dr. Murphy covering the technique of the operation, the diagnosis, the methods of arriving at the same and all points involving the living pathology of the particular type of case under consideration.

The following cases are described in the present volume: Carcinoma of the breast; lipoma of the shoulder; varicocele; nerve anastomosis; salvarsan; cystadenoma of the breast; pelvic tumor; exploratory laparotomy; fracture of the patella; blood-clot in the bladder; tuberculosis of right kidney; Charcot's disease of the hip joint; epithelioma of the nose; pelvic tumor; nerve anastomosis (the musculospiral nerve); duodenal ulcer, hydrops; hemangioma of the leg; fistula in ano; arthritis of the wrist joint.

UROLOGY. The Diseases of the Urinary Tract in Men and Women. A book for practitioners and students. By Ramon Guiteras, M. D. (Harv.), Professor of Genito-Urinary Surgery, New York Post-Graduate Medical School; visiting Surgeon to the Columbus and Post-Graduate Hospitals; Consulting Surgeon to the City and French Hospitals; Formerly Professor of Anatomy, Operative Surgery and Gynecology, Post-Graduate Medical School, and Visiting Surgeon in the Department of Genito-Urinary Diseases and Gynecology, New York City Hospital; Member of the American Medical Association, the American Urological Association, the French Urological Association, the American Public Health Association, the American Association of Genito-Urinary Surgeons, the American Association of Obstetricians and Gynecologists, the Association of Military Surgeons of the United States, the American Society of Tropical Medicine, the New York Academy of Medicine, and the Harvard Medical Society. Volume I, octavo of 667 pages; Volume II, octavo of 757 pages. With nine hundred and forty-three illustrations in text and seven plates. New York and London: D. Appleton & Company, Price $12.00 per set.

This work includes all the diseases of the urinary tracts, both medical and surgical, in men and women. Cause, diagnosis and

Digitized by Google

treatment have been given particular attention while pathology is not treated at as great length as in some similar books.

The first part of the book constitutes an introduction to the second. It contains chapters on anatomy, laboratory methods, proper offices with their equipment, instruments, apparatus and their sterilization, technique, etc. A lengthy description of general and special symptoms is then given and methods of making histories and examinations with the manner of arriving at diagnosis. Treatment is next discussed, antisepsis, asepsis, and local and general anaesthesia as they apply to the various urological operations. A small section on the diagnosis of metabolism concludes this portion of the book.

The second part is principally operative and clinical.

The object of the author has been to make his book a comprehensive work for the practitioner and in this he has succeeded admirably. The illustrations are extremely good and appropriate to the text. The publishers should also be congratulated on their assistance in making the volumes attractive and valuable to the student.

THORNTON'S MEDICAL POCKET FORMULARY. New (10th) Edition. Containing over 2,000 prescriptions, with indications for their use. In one leather-bound volume. Price, $1.50 net. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

The popularity of this formulary is well attested as it now appears in its tenth edition.

A just, and a very just, prejudice exists in the medical profession against formularies as their use is so apt to adapt the patient to the prescription rather than the reverse which, of course, should be the case. Intelligently used, however, this formulary should prove of value.

Digitized by Google

EDITORIAL

THE best training for war is, of course, war, but fortunately perhaps, from every standpoint than this, wars are now infrequent. Therefore training for war must in some way be provided in peace. This is a truism but still it is necessary to determine just what the scope of such training should be. For the line of the army the accepted practice is so well known that it need not be discussed here. In many countries military exercises of great magnitude are indulged in at frequent intervals and these are carried out to include all zones from front to rear so that the staff departments receive valuable training coincidently with the line. This plan, of course, has everything to commend it from the standpoint of military efficiency for both line and staff. With us, however, it is seldom possible to assemble large enough bodies of troops to give either line or staff officers a picture of war on a large scale. Moreover, as we are accustomed in our maneuvers to represent only the front the education of the staff officer in his very important duties on the lines of communication and at the rear to a less extent are per force neglected.

This is in no sense a criticism of this state of affairs. What suggests itself immediately, however, is the question if there is no other method which might operate to the advantage of certain staff departments. It is believed that this question may be answered in the affirmative. In the absence of military opportunities the next best thing especially for officers of the quartermaster, subsistence and medical departments would appear to be work involving considerable responsibilities under conditions as nearly as might be similar to those of war.

The medical department has perhaps been particularly fortunate in this respect since the Spanish-American War. On the Canal Zone, in Cuba, in Porto Rico and in the Philippines sanitary work on a great scale has given medical officers opportunity to work out many interesting hygienic problems and to solve administrative questions of great moment. And so far as increased responsibilities in this important part of their work are con-

Digitized by Google

cerned there is no doubt but they have profited greatly from this experience.

Nor have other opportunities been lacking; in the San Francisco earthquake and fire the medical department played an important part in the relief work. Not only to the great benefit of the afflicted community but also to the benefit of the medical officers concerned through the experience they gained in solving in an emergency difficult questions of administration.

At the time of going to press another great disaster demands relief. Reference is made to conditions resulting from the serious floods along the Mississippi river. The War Department has already expended considerable sums in relieving the sufferers from these floods. The quartermaster and subsistence departments both have officers on the ground who are providing for the needs of the stricken communities by the purchase and issue of sorely needed supplies. It is understood that medical supplies are also being issued by the medical department.

The important question that still remains to be solved, however, is protecting the crowded refugees in the camps from the inroads of disease.

It is understood that a special medical inspector has been detailed to take this work in hand.

It is still too early to prophesy what the effect of his labors will be. But it is safe to say that all the unfortunate inhabitants along the Mississippi will profit from his services.

Digitized by Google

NEWS OF THE SERVICES

The closing exercises of the United States Naval Medical School were held at this school in Washington, D. C., on March 25, 1912.

The programme was as follows:

Invocation—Reverend George Livingston Bayard, Chaplain, U. S. Navy.

Presentation of Diplomas—Surgeon General Charles Francis Stokes, U. S. Navy.

Address—Surgeon General Charles Francis Stokes, U. S. Navy.

Address—Professor William Webber Ford, M. D., D. P. H.; Professor of Hygiene and Bacteriology, Medical Department, Johns Hopkins University.

Closing Remarks—Medical Director Henry Gustav Beyer, U. S. Navy; President of the United States Naval Medical School (published in full in this issue).

Benediction.

The faculty and instructors of the Naval Medical School are:

Medical Director Henry Gustav Beyer, U. S. Navy, President of the School.

Medical Inspector Edward Rhodes Stitt, U. S. Navy, Instructor in "Naval and Tropical Medicine."

Surgeon Robert Morris Kennedy, U. S. Navy, Instructor in "Applied Naval Medical Science."

Surgeon Edward Mansfield Shipp, U. S. Navy, Instructor in "Ophthalmology."

Surgeon James Chambers Pryor, U. S. Navy, Instructor "Naval Hygiene."

Surgeon Raymond Spear, U. S. Navy, Instructor in "Naval and Operative Surgery."

Passed Assistant Surgeon Heber Butts, U. S. Navy, Instructor in "Psychiatry."

Passed Assistant Surgeon Philip Eugene Garrison, U. S. Navy, Instructor in "Medical Zoology."

Passed Assistant Surgeon Montgomery Earle Higgins, U. S. Navy, Instructor in "Bacteriology and Clinical Microscopy."

Professor C. Wardell Stiles, Professor of Zoology, Public Health and Marine-Hospital Service, Special Lecturer on "Medical Zoology."

Dr. William A. White, Superintendent, Government Hospital for the Insane, Special Lecturer on "Psychiatry."

Pharmacist Edward Rogers Noyes, U. S. Navy, Instructor in "Chemistry."

The following is the list of members of the class and states from which appointed:

Assistant Surgeon Chester McIntyre George, U. S. Navy, Pennsylvania.

Digitized by Google

Assistant Surgeon Luther Sheldon, Jr., U. S. Navy, Virginia.
Assistant Surgeon Penlie Brisco Ledbetter, U. S. Navy, North Carolina.
Assistant Surgeon Richard Henry Laning, U. S. Navy, Washington.
Assistant Surgeon John Calhoun Parham, U. S. Navy, Alabama.
Assistant Surgeon Robert Francis Jones, U. S. Navy, Virginia.
Assistant Surgeon Charles Lee Beeching, U. S. Navy, District of Columbia.

On April 2nd, 1912, the Adjutant General of the Army notified twenty members of the Medical Reserve Corps, now on active duty, that in all probability orders would be issued about October 1st, 1912, for their recall from active service. It was explained in this letter that each officer to be recalled would be given all the leave due him on full pay. The recall of these officers is made necessary on account of the large number of reserve officers who will complete the course at the Army Medical School the latter part of May and will then be commissioned in the Medical Corps.

The graduating exercises of the Army Medical School will be held on the afternoon of May 31, 1912, at the Memorial Continental Hall, Washington, D. C. It has not yet been decided who will deliver the principal addresses.

Lieutenant W. H. Allen, Medical Corps, who was under treatment at the Army and Navy General Hospital, Hot Springs, Arkansas, joined his proper station, Fort Sam Houston, Texas, on March 8th.

The transport "Sherman" arrived in San Francisco, California, from the Philippines, on April 15th. Lieutenant Colonel Gandy, Medical Corps, who is assigned to duty in the Surgeon General's office, was on board.

Lieutenant Colonel Thomas U. Raymond, Medical Corps, returned from the Philippines on the last transport, to avail himself of a four months' leave of absence which was granted him in the Philippines Division, on account of exceptional circumstances.

Orders have been issued during the past month for the following-named medical officers to proceed to Alaska on the transport which leaves San Francisco on June 1st, relieving the medical officers in Alaska, who have completed their tour of foreign service:

Captain R. H. Pierson, Medical Corps, to relieve Captain Jesse R. Harris, Medical Corps, at Fort Gibbon, Alaska

1st Lieut. Alleyne von Schrader, Medical Corps, to relieve 1st Lieut. Edgar C. Jones, Medical Corps, Fort Liscum, Alaska.

1st Lieut. Frank E. Artaud, Medical Reserve Corps, to relieve 1st Lieut. C. I. Wertenbaker, Medical Reserve Corps, Fort Gibbon, Alaska.

The officers relieved from duty in Alaska will proceed to Seattle, Washington, and report for further orders, except Lieutenant Wertenbaker, who has been directed to proceed to his home, for recall from active service.

1st Lieutenant Ernest K. Johnstone, Medical Reserve Corps, Schofield Barracks, is spending a leave of absence at his home, San Francisco, California. It is the understanding that Lieutenant Johnstone is going to ask to be placed on the inactive list.

Digitized by Google

1st Lieutenant Walter Whitney, Medical Reserve Corps, who has been on a thirty days' leave of absence, has returned to his station, Fort McPherson, Ga.

1st Lieutenant Morrison C. Stayer, Medical Corps, and 1st Lieutenant John B. H. Waring, Medical Corps, have received notification from the Adjutant General of the Army that they have passed their examination for promotion to the grade of Captain.

1st Lieutenant Raymond W. Mills, Medical Corps, is at the Walter Reed General Hospital, Takoma Park, D. C., for observation and treatment. It is the understanding that he is somewhat improved.

1st Lieutenant Frederick H. Sparrenberger, Medical Reserve Corps, returned from the Philippine Islands, as temporary surgeon of the transport "Sheridan." He accompanied the 14th Cavalry to Fort Clark, Texas, and then availed himself of a two months' leave of absence granted him in the Philippines Division.

The resignation of 1st Lieutenant Thomas J. Leary, Medical Corps, was accepted by the President, to take effect March 15, 1912. Lieutenant Leary was graduated from the Army Medical School and was appointed a 1st Lieutenant in the Corps on May 31, 1909. It is the understanding that he now desires to return to the Corps.

Captain William R. Davis, Medical Corps, and Captain George P. Peed, Medical Corps, have completed their temporary duty at West Point, where they assisted the senior medical officer on duty at the Academy in a course of Hygiene.

The friends of Lieutenant Colonel William P. Kendall, Medical Corps, will regret to learn that he was called to Massachusetts during the past month on account of the death of his father.

Captain Howard H. Baily, Medical Corps, has been on a thirty days' leave of absence from his station, Fort Myer, Virginia, since March 20, 1912.

Major William H. Brooks, Medical Corps, was in Washington on April 15th and 16th, en route to Nauheim, Germany, where he expects to take a special course of treatment. He will sail from New York Thursday, April 18, 1912.

Col. George E. Bushnell, Medical Corps, was in the city March 23rd, en route to Rome, Italy, where he will represent the Medical Department of the Army at the International Congress against Tuberculosis, which will be held in that city April 14-20, 1912. Colonel Bushnell has been granted a three months' leave of absence to take effect when he completes his duty in Rome.

Captain E. H. Bruns, Medical Corps, on duty at Fort Bayard, New Mexico, has been granted a month's leave of absence, to take effect about April 29, 1912.

Colonel John Van R. Hoff, Medical Corps, was placed on the retired list April 11, 1912, and has taken up his residence in Washington, D. C. On the evening of April 13, 1912, the Medical Corps officers in the District of Columbia gave Colonel Hoff a complimentary dinner at the

Digitized by Google

Raleigh Hotel. Colonel Hoff was appointed an Assistant Surgeon in the Army, November 10, 1874, and attained the grade of Colonel, January 19, 1905. He has been prominently identified with all the progress made by the Medical Department since he became one of its members.

Major J. R. Shook, Medical Corps, has left Fort Logan, Colorado, on a two months' and twenty days' leave of absence.

Colonel H. O. Perley, Medical Corps, who has been on a two months' sick leave of absence, returned to Fort Leavenworth, Kansas, on April 1st.

Major Robert E. Noble, Medical Corps, who has been on temporary duty in Porto Rico, was in the city during the month, en route to resume his duties on the Isthmian Canal Commission on the Isthmus.

Orders have been issued for Major W. E. Purviance, Medical Corps, and Major C. C. McCullough, Medical Corps, to report to the President of the examining board in Washington, D. C., on June 24, for examination to determine their fitness for promotion to the grade of Lieutenant Colonel.

The retirement of Colonel John Van R. Hoff, Medical Corps, resulted in the following promotions: Lieutenant Colonel William Stephenson, to the grade of Colonel; Major Henry A. Shaw, to the grade of Lieutenant Colonel; Captain William R. Eastman, to the grade of Major.

Major H. S. Greenleaf, Medical Corps, was called to the city the early part of April, on account of the death of Mrs. Greenleaf's father.

1st Lieutenant C. E. Lauderdale, Dental Corps, has been relieved from further observation and treatment at the Walter Reed General Hospital, Takoma Park, D. C. After availing himself of a short leave of absence Dental Surgeon Lauderdale will return to his station, Fort Logan, Colorado.

The death of Colonel L. W. Crampton, Medical Corps, resulted in the following promotions: Lieutenant Colonel John L. Phillips, to be Colonel; Major Francis A. Winter, to be Lieutenant Colonel, and Captain J. F. Hall, to be Major.

Passed Assistant Surgeon E. Krulish, of the Public Health and Marine-Hospital Service, has been detailed for duty in Alaska. He will represent both the Public Health and Marine-Hospital Service and the Bureau of Education of the Department of the Interior. His work will in part be that of making a study of the sanitary needs of the various communities in the district, with special reference to the natives. He will proceed at first to Juneau, but his duties will undoubtedly take him into practically all parts of Alaska.

Passed Assistant Surgeon R. M. Grimm, of the Public Health and Marine-Hospital Service, has been detailed to make field investigations of pellagra in Georgia and South Carolina. These studies will be largely of an epidemiologic character and will be a continuation of those made last summer.

Digitized by Google

A board was convened on April 8 at the Bureau of the Public Health and Marine-Hospital Service for the purpose of examining candidates for admission into the Service. The board consisted of Surgeon C. P. Wertenbaker, Surgeon W. G. Stimpson and Passed Assistant Surgeon A. M. Stimson. Twenty-five candidates appeared for the examination.

Surgeon R. M. Woodward, of the Public Health and Marine-Hospital Service, has been relieved from duty at the Marine Hospital at Detroit, Michigan, and detailed in charge of the Marine Hospital at San Francisco, where he will relieve Surgeon J. M. Gassaway. Surgeon Gassaway has been detailed in charge of the Marine Hospital at Cairo, Illinois.

Passed Assistant Surgeon John D. Long, of the Public Health and Marine-Hospital Service, has been detailed to assume charge of the field operations in connection with the plague suppressive measures in California. Passed Assistant Surgeon D. H. Currie will be in charge of the Plague research laboratory in San Francisco.

Passed Assistant Surgeon W. C. Rucker, of the Public Health and Marine-Hospital Service, has been detailed for duty at the Bureau, where he will be in charge of the Interstate Quarantine Division.

The following officers of the Public Health and Marine-Hospital Service have been detailed for duty on board revenue-cutters about to make their usual summer cruises:

Passed Assistant Surgeon Hugh de Valin, on the revenue-cutter McCullouch, at San Francisco.

Assistant Surgeon B. J. Duffy, on the revenue-cutter Tahoma, at Seattle.

Assistant Surgeon J. A. Watkins, on the revenue-cutter Bear, at San Francisco.

Assistant Surgeon N. D. Brecht, on the revenue-cutter Manning, at Seattle.

Passed Assistant Surgeon M. W. Glover, of the Public Health and Marine-Hospital Service, in charge of the medical inspection of immigrants at San Francisco, was detailed at the request of the Secretary of the California State Board of Health to attend a conference of the State Board of Health with the California Tuberculosis Commission and Committee of Fifteen on Standard Methods of Public Health Administration in that State, held at Del Monte April 16 to 18.

BULLETIN OF MILITIA NOTES, ISSUED BY THE DIVISION OF MILITIA AFFAIRS, WAR DEPARTMENT, FOR THE YEAR 1912.

April 1, 1912

60. After mature consideration, the Secretary of War has decided that it will be impracticable for the Army to take any part in the national matches this year, either by sending teams, or by furnishing markers, scorers, etc. The demands upon the military establishment will prove so great during the coming year as to make this course necessary. Station

Digitized by Google

changes are taking place between the troops in this country and the Philippines, troops are required at the several maneuver camps, and a large force is needed for duty along the Mexican border.

Efforts have been made to induce the authorities of certain States to conduct the matches this summer and furnish the necessary funds and details of troops therefor. The States have been unable to accomplish this, however, for the reason that they have no appropriations available for such purpose. Consequently, it is with much regret that the abandonment of the national matches for the present year is announced.

* * * * * *

63. The State of Massachusetts will hold a marching competition for teams consisting of one officer and sixteen enlisted men from organizations of the Massachusetts Volunteer Militia. The distance covered will be approximately 20 miles, and points will be scored on (a) appearance; (b) attendance; (c) time; (d) duration; while suitable penalties are provided for violation of the rules of the contest. The service uniform will be worn, and the contestants will be equipped for the field with the exception of the blanket roll. Complete information is given in General Orders No. 5, Commonwealth of Massachusetts, current series.

64. The interest and energy manifested by a number of States in the increase and reorganization of their sanitary troops is a matter of encouragement and gratification to the War Department. The records of the Division of Militia Affairs, January 1, 1910, show that there were in the Organized Militia of the United States but two Field Hospitals and one Ambulance Company Section. Since then, there have been organized sufficient of these units to bring the total up to eighteen Field Hospitals and thirteen Ambulance Companies. Additional Field Hospitals and Ambulance Companies are contemplated by several States.

In addition to these sanitary units, there are 120 detachments of the Hospital Corps. The sanitary troops of the Organized Militia approximately number 800 medical officers and 2,600 enlisted men.

While this encouraging progress applies to the majority of the States there are a few whose provision for sanitary service is very inefficient, some States having no enlisted sanitary personnel at all.

* * * * * *

(Sgn.) R. K. EVANS,
Brigadier General,
Chief, Division of Militia Affairs,
For the Chief of Staff.

Major James W. McMurray, Medical Corps, Ohio, N. G., retired, who is an old member and has many friends in the Association, was married to Mrs. Alice R. O'Connor at Marion, Ohio, on Tuesday, April 2, 1912. After a short trip to Oklahoma, Major and Mrs. McMurray will visit Mexico, Missouri, subsequently returning to Marion, Ohio, for part of the summer.

Digitized by Google

News was received here yesterday from Norfolk of the resignation of Colonel Junius F. Lynch, of Norfolk, as Surgeon-General of the Virginia Volunteers. Coming without warning, the resignation of Colonel Lynch has occasioned the sincerest regret in military circles here, and the belief is universally expressed that difficulty will be experienced in finding his successor. In forwarding his resignation to Governor William Hodges Mann, Colonel Lynch stated that business affairs had become so pressing that the conscientious execution of his duties was no longer possible.

When asked regarding Colonel Lynch's announcement last night, Adjutant-General Sale had this to say:

"Colonel Lynch's resignation is received by us with the greatest regret, knowing as we do the quality of service he has rendered the Virginia militia. His work has always been of the finest character. The resignation will be accepted with the consciousness of true loss. His place will be hard to to fill.

Colonel Lynch was appointed to the office of Surgeon-General, Virginia Volunteers, by Governor Swanson, after he had ably served twelve years as surgeon in the volunteer artillery service. Before official action on his resignation can be taken by Governor Mann there are certain formalities which must be performed, such as rendering a detailed catalogue of all military property in the possession of the surgeon-general's department of the Virginia Volunteers at the time of his withdrawal. His resignation will become effective as soon as the necessary formalities are completed.

There is no intimation of who is to be his successor.

* * * * * *

The deep regret expressed in military circles throughout the Commonwealth at the resignation of Colonel Junius F. Lynch as Surgeon-General of the Virginia Volunteers is convincing testimony alike of the faithfulness and efficiency of his work as head of the medical department of the State militia and of the high regard in which the man is held in the military establishment generally. For more than fifteen years Colonel Lynch has been identified, in one capacity or another, with the Volunteer Service; his retirement, while richly earned, can not but be regarded as constituting a real loss and as creating a vacancy which it will be difficult to fill.

Digitized by Google

MEDICAL DIRECTOR GEORGE E. H. HARMON, U. S. Navy, died at Cambridge, Maryland, March 5, 1912, at the age of 64 years. He was a graduate of the class of 1872, of the Medical Department of the University of Maryland, and entered the service December 20, 1873, as an assistant surgeon, being retired by reason of age, March 5, 1910, in the grade of Medical Director, with the rank of Captain.

His service afloat was varied and extensive, covering over 17 years.

He was the dean of the Medical Corps. The loss of his services due to his retirement in 1910, was a source of regret to the entire service.

Dr. Harmon had active duty in almost every part of the world and always made a lasting impression, both socially and professionally, that did credit to the Corps and his country.

He was in command of the Naval Hospital, Yokohama, Japan, from September 27, 1900, to December 24, 1902, and of the Naval Hospital, Washington, D. C., from July 20, 1908, until June 20, 1910.

Dr. Harmon will long be remembered by his associates for his kindly nature, his marked general and professional ability. He had a high sense of duty which, combined with marked executive qualities, rendered his service in command of a hospital particularly valuable. His contributions to literature on subjects of naval medicine were interesting and valuable.

Dr. Harmon was never married but is survived by relatives at Cambridge, Maryland.

Medical Director Harmon had been an active member of the Association since 1902.

LIEUTENANT HENRY O. WALKER, Medical Reserve Corps, U. S. Army, an active member of the Association, died at his home in Detroit, April 5, from pneumonia, aged 68.

Dr. Walker was born in Detroit December 18, 1843, the son of Robert E. and Elizabeth Lee Walker. His preliminary education was received at Albion (Mich.) College and the University of Michigan, Ann Arbor. He finished his medical course in Bellevue Hospital Medical College, New York City, in 1867, and at once began practice in his native city. Two years later he became connected with the Detroit College of Medicine and served as secretary from that time until his death. He was also a

Digitized by Google

member of the board of trustees and professor of surgery in the institution.

His society membership included the American Medical Association, of which he was third vice-president in 1888-9 and first vice-president in 1892-3, and in which he served as secretary of the section on surgery in 1883, chairman in 1899, and as a member of the house of delegates from the section in 1904. He was also a charter member and past president of the Mississippi Valley Medical Association and was secretary of the Detroit Academy of Medicine in 1876. He was also a member of the American Urological Association, American Association of Obstetricians and Gynecologists, the Michigan State and Wayne County Medical Societies, American Medical Editors' Association and American Medical College Association. He served Detroit as city physician and as a member of the Board of Estimates and Board of Health, and Wayne County as county physician.

His connection with the Military Service commenced in 1908, when he was commissioned First Lieutenant in the Medical Reserve Corps, U. S. Army. His hospital connection included the position of surgeon to Harper, St. Mary's and St. Luke's hospitals and the Eastern Michigan Asylum.

His literary work commenced when he became editor of the *Detroit Review of Medicine* in 1869, and he had made many contributions to medical literature, chiefly on surgery of the genito-urinary apparatus.

Dr. Walker was a man well known and much beloved throughout the middle west, a power in the societies of which he was a member, and while he had not been active in the last two or three years of his life, his influence was felt and his loss will be regretted and deplored, not only by the many students who had their first lessons in surgery from him, but also by the great mass of his friends in and out of the medical profession of the middle west.

COLONEL LOUIS W. CRAMPTON, Medical Corps, U. S. Army, an active member of the Association of Military Surgeons since 1903, died in San Bernardino, California, April 12, from pneumonia, aged 63.

He war born in Maryland, May 8, 1848. He received his medical education at the University of Maryland, from which he was graduated in 1869. On June 26, 1875, he became an Assistant Surgeon in the Army and was promoted to Captain, June 26, 1880; to Major, September 6, 1895; to Lieutenant Colonel, August 9, 1903; and Colonel, April 23, 1908. He served with troops at Fort Sheridan, Fort Spokane, Fort Meade, and in Washington, D. C., and St. Louis as medical supply officer. He served two terms of duty in the Philippines, the second as Chief Surgeon of the Philippines Division, and had returned to the United States, after having been relieved from this duty, and was awaiting retirement at San Bernardino, California, when seized with his fatal illness.

He was a member of the American Medical Association.

Digitized by Google

Faught Pocket Blood Pressure Apparatus

Built like a watch on the Aneroid principle, not a Spring Instrument. Can be carried in the pocket. Simple accurate and easy to use. Always reliable. Adjusted in a moment. Just like taking a pulse. Price, complete, with arm band and inflating pump, in durable morocco case . . . **$22.50 net**

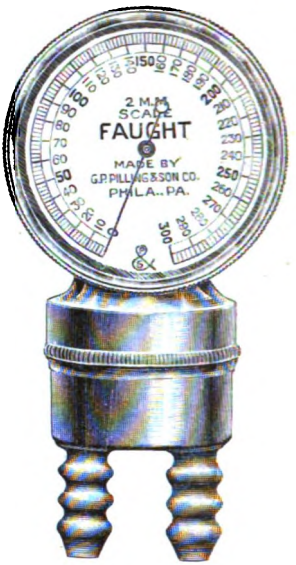
also

Faught Standard Mercury, $20.00 net
Pilling Special No. 1 Mercury, 15.00 net
Pilling " No. 2 " 12.00 net
Faught's Book on Blood Pressure, 25 cts.

Signed certificate by Dr. Faught with every instrument

FAUGHT'S BOOK ON BLOOD PRESSURE FREE WITH EVERY APPARATUS

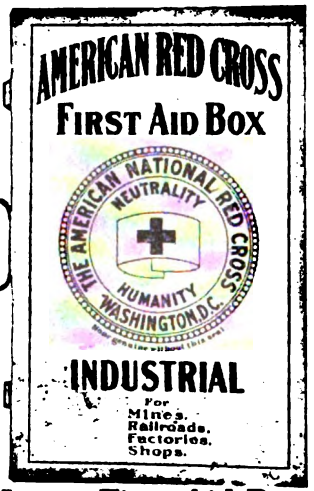
Made only by



ACTUAL SIZE

G. P. PILLING & SON CO., Philadelphia, Pa.

AMERICAN RED CROSS



Large First Aid Box
FOR INDUSTRIAL PLANTS
PRICE $6.00

FIRST AID BOOKS & SUPPLIES

For the

RAILROAD MAN
FACTORY MAN
MINER and
All Other Industrial Employees

Also

THE HOUSEWIFE
THE TEACHER and
THE BOY SCOUTS

Illustrated Catalogue Mailed on Request

AMERICAN RED CROSS
First Aid Department
Washington, D. C.

Digitized by Google

The Military Surgeon

Vol. XXX. JUNE, 1912 No. 6

ORIGINAL ARTICLES.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS EXPRESSED IN THEIR CONTRIBUTIONS.

MILITARY ABSENTEEISM IN WAR, WITH SPECIAL REFERENCE TO THE RELATION OF THE MEDICAL DEPARTMENT THERETO. [CONTINUED]

By EDWARD L. MUNSON, Major, Medical Corps; Director, Field Service School for Medical Officers, the Army Service Schools, Fort Leavenworth, Kansas.

ABSENTEEISM DUE TO IMPROPER LOCATION AND MANAGEMENT OF GENERAL HOSPITALS.

It has already been pointed out that the U. S. General Hospitals differed little except in name from the State Hospitals which they succeeded. The latter should in most cases have been promptly abandoned for military purposes as soon as suitable establishments for the care of the disabled could be created nearer the theater of war, but politics, business and sentiment interfered with this being done. The States insisted on such institutions being maintained within their borders, though this was illogical from a military standpoint and undesirable in a professional and humanitarian sense. Instead of treating the sick and wounded soldier as a temporarily disabled military unit to be sent for repair to the most convenient point near the front which could be provided with suitable facilities, where he could be kept better under military control and whence he could be returned with the minimum delay when recovered, he was sought out by active agents and sent away by tedious and hurtful journey over long distances to be placed under conditions every tendency of which was to interfere with and delay return. It is true that as time went on military emergency and the result of action forced

Digitized by Google

the establishment of various General Hospitals at strategic points, and once established, politics could scarcely accomplish their removal. But in the loyal states, excluding those of Pennsylvania, Maryland, West Virginia and Kentucky, which were close enough to the scene of conflict to possess strategic advantages for hospital establishment, there were as late as December 17, 1864, no less than 63 such hospitals in operation as follows:

New York	15	Ohio	9
New Jersey	1	Indiana	6
New Hampshire	1	Illinois	6
Vermont	3	Michigan	2
Connecticut	1	Wisconsin	2
Massachusetts	3	Iowa	2
Rhode Island	1	Missouri	8
Maine	1	Kansas	2

Nor were those established within each state located at the most suitable point therein; on the contrary, various unmilitary considerations caused them to be established in diverse places—as in New York, which had fifteen General Hospitals, five of which were located in New York City and ten in Buffalo, Rochester, Elmira, Troy and other points nearer tidewater.

For the improper location of many of these General Hospitals, the Medical Department could scarcely be held responsible. Politics controlled it—but it must be admitted that there is no record that either the Surgeon General or the War Department took a vigorous stand in opposition thereto. The military side of things in this respect as well as others where sick and wounded were concerned seems to have been overlooked or disregarded, and there can be no doubt but that this factor contributed vastly to the difficulties of the medical service and greatly promoted the evil of absenteeism. Similarly, during the Spanish War, political influences promptly set to work to secure the establishment of army hospitals in communities whose location rendered them utterly unsuitable for such purposes—and that such efforts were unsuccessful was undoubtedly due only to the trivial nature and short duration of that war. And in the next war, sentiment and selfish business interests may be expected to be found combined to similar undesirable ends.

The magnitude of the service connected with the General Hospitals in the Civil War is shown by the fact that on December 17,

Digitized by Google

1864, there were no less than 192 such institutions, having the vast number of 118,057 beds, of which 83,409 were then occupied. This gave an average capacity of about 600 beds per hospital, but there were two of the enormous size of 3,500 beds each. This fact is mentioned to illustrate the tremendous administrative difficulties attending the care of the sick and wounded. That the organization and management of such vast institutions in the Civil War had to be accomplished chiefly by volunteer medical officers without previous experience in such duties was largely responsible for their defects, is undoubtedly true. But we must not forget that in future wars the same source of patriotic but untrained assistance will have to be called upon, and repetition of the same mistakes may be expected, as the present medical service is utterly inadequate numerically to furnish sufficient medical officers to take such work satisfactorily in charge.

The above figures also, in part, well illustrate the degree of absenteeism dependent on lax administration by the Medical Department. The 83,409 patients reported as in General Hospitals on December 17, 1864, represented about 9% of the total strength of 959,460 shown by the muster rolls on January 1st, 1865. This percentage was in addition to the sick and wounded under treatment with regiments, the many who were being cared for in the division hospitals, the large number constantly being transported to the rear on the many hospital ships and trains, and the vast number scattered to the four winds of heaven through the agency of sick furloughs. The number away from the ranks through these latter agencies can, of course, not be given. Probably an assumption that it more than equalled the number under actual treatment in the General Hospitals would not be unwarranted. That any such proportion, as some twenty per cent of the fighting force—or even a greater fraction of such proportion—could have been legitimately incapacitated for duty under the circumstances will strike the experienced medical officer not only as an absurdity but as a professional enormity and unwitting crime against commanders and the nation.

And there comes up the following point in this connection:

Under the General Orders (36 and 78, 1862), affecting the care of the sick and wounded,

Digitized by Google

"all the General Hospitals passed at once under the control of the Surgeon General and the medical officers he might choose to appoint." (Upton, p. 406.)

"It matters not where the hospitals were located whether in the most distant Northern States, or within the immediate theater of war. The medical officer in charge was independent of all military supervision.

"Commanders could order no inspection; their authority had ceased; the soldier who could step from the ranks and gain admission to the general hospital was free from military duty; his superiors could not touch him. Although there may have been hundreds if not thousands of men fit for duty, the commander of the Army of the Potomac, as it marched through Alexandria and Washington on its way to Antietam, could not order back to his regiment a single soldier or medical attendant from any of the hospitals, without violating the orders of the Secretary of War.

"The effect of these orders was to divide the armies of the Union into two distinct classes—one moving to the front, the other to the rear.

"The imperfect command of the first class was bestowed upon the generals in the field. Those of the second class, recruited by the agents of the States from the General Hospitals at the front, and which were maintained by their zeal and activity, between the limits of one and two hundred thousand men, were nominally commanded by the Surgeon General. In reality they were commanded by the governors, who, like so many dictators, wielded their authority through the Secretary of War." (Upton, pp. 405-407.)

In the above, General Upton calls attention to an evil which is real. The results were, as he says, unsatisfactory. But the results could, had sufficient trained medical officers been available, been made quite satisfactory. Executive methods, rather than general principles, were clearly at fault. Had the medical officers done their duty, and had they been brought to realize their military obligations as officers as well as their humanitarian purpose as doctors, there would not have been "hundreds, if not thousands of men fit for duty" in the Washington hospitals. The trouble was that the surgeons commanding these hospitals as a class regarded themselves only as doctors—instead of being that and something more. Inclination, custom and military influence favored the narrower point of view. They did not realize or perform their duty as officers.

The line has been largely responsible for the failure of medical officers to realize their full duties. It cannot be denied that ef-

Digitized by Google

forts at a wider knowledge and field of usefulness by the latter of their functions as officers have too often been met and nullified by opposition and indifference. Too many of our combatant officers have been constantly inclined to constantly impress their medical confreres with the idea that they are practicing physicians only—instead of their being all that and then a great deal more.

While this paper is devoted to a candid discussion of the defects and shortcomings of the Medical Department in time of war, it must not therefore be supposed that matters outside the jurisdiction of the medical officers always run smoothly in frictionless perfection. Far from it! From a somewhat exhaustive and critical study of the Civil War as a whole, and not one relating to such part as concerned the Medical Department alone, the writer is convinced that, faulty as was the work of the untrained medical officers in that great struggle, the mistakes and deficiencies of the volunteer line officers in their own fields of duty were even more numerous and serious. Even to one who makes no pretense of tactical knowledge, the gross tactical errors and administrative mistakes there made by the untrained line officers are more than apparent. But the whole theory of the proper art of making war is not to thereby be deemed faulty if some, or even a majority of untrained line officers should fail in their ignorance to understand and apply it, and the same is true in respect to hospital management. The General Hospitals of the Civil War were probably at least quite as well administered by medical officers fresh from professional practice in civil life as they would have been under volunteer line officers, many of whom were very likely commissioned from the street corners and controlled by untrained generals whose qualifications for their positions of authority are shown by history to have largely been the political services they had rendered their party.

The present Army Regulations contain the following paragraphs:

"1461. General hospitals will be under the exclusive control of the Surgeon General and will be governed by such regulations as the Secretary of War may prescribe. The senior surgeon will command the same and will not be subject to the orders of local commanders other than those of territorial divisions and departments to whom specific delegation of authority may have been made.

Digitized by Google

"1462. Hospital transports, boats, and railway trains, after being properly assigned as such, will be exclusively under the control of the Medical Department, and will not be diverted from their special purposes by orders of local or department commanders or officers of other staff corps."

That the provisions of paragraph 1461 have worked well during the years since the Spanish War—and are at present working well—is undeniable. Not even the most strenuous opponents of the direction of our General Hospitals by medical officers can base their arguments on a legitimate claim of inefficiency in their management. So, too, with the results obtained under paragraph 1462, which was in active operation for several years during and after 1898, though now necessarily suspended under conditions of peace requiring none of the special formations there prescribed.

The system provided for in these paragraphs is a success; but it must be emphasized that it has been a success only because the Medical Department has been large enough to furnish it with sufficient trained medical officers to direct and manage it under the needs of peace and of a minor war. Such actual experience has demonstrated beyond shadow of doubt that the system is practicable in theory and can be made efficient in practice. If it breaks down in any great war of the future, it will not be because it is inherently wrong, but because—under a complacently accepted policy of national unpreparedness—there are not available trained medical officers in a number sufficient to put its wise provisions into intelligent practice.

UNNECESSARY ABSENTEEISM CONSEQUENT ON WRONGFUL ADMISSION TO SICK REPORT.

The sick report of any army is the natural and proper resort of the ailing. It is no easy matter, however, and particularly for medical officers of inexperience, to limit its benefits to those legitimately entitled to them. Its abuse, in the unnecessary withdrawal of rifles from the firing line, is a matter of the most grave concern to commanders; and since its control is habitually in fact, if not in theory, finally reposed in medical officers, it is

Digitized by Google

essential that the latter not only appreciate, but act according to their responsibilities.

But if the sick report is not properly safeguarded, it becomes the refuge to which the dispirited and homesick instinctively turn. None know better than medical men the profound influence of a depressed mental state upon the body—a factor which prevails in perhaps its greatest degree among a volunteer soldiery and especially during periods of military inaction rather than the excitement and stresses of campaign. The man who honestly thinks himself sick is really ailing, though what is usually needed is not entrance to sick report but encouragement and assignment to such active arduous duty, as will give little leisure for brooding and introspection. A certain proportion of such cases, however, undoubtedly need medical attention. The Medical and Surgical History of the Civil War records a total of 5,266 admissions for nostalgia or homesickness, with 60 deaths; and while such results imply an intensification of symptoms to a degree rarely encountered, they indicate the influence which a depressed and melancholic state of mind would have, in the exaggeration of essentially trifling and insignificant conditions, in a very large percentage of soldiers applying for professional treatment and care. Particularly in time of epidemic is this pessimistic outlook as to things personal apt to develop, and it is unfortunately just such periods and prevalence of distress as tend to render the medical officer—particularly if new to the service—unduly hasty in action and impaired as to judgment. While this class of cases is actually ailing, this is probably not the case to the degree personally and honestly believed in and officially expressed. They usually, but not always, present some minor symptoms of a demonstrable nature which, re-enforced and magnified by allegations regarding the subjective state, combine to render the medical officer no difficult victim of their unconscious malingering. The proportion of such cases is by no means small; undoubtedly it is rather the reverse, though naturally there is no way of accurately determining in figures its prevalence and extent. That exaggeration of symptoms is common with a large proportion of milder ailments presented to the military surgeon, and that such exaggeration—largely incapable of disproval—results through overcredulity and kindness in the admission to sick report of many

Digitized by Google

whose physical condition does not warrant their being there, will not be gainsaid.

The sick report likewise furnishes the gateway through which the wilful, deliberate malingerers endeavor to obtain relief from their obligations and an escape from a distasteful service. The number of these is naturally a variable but never an inconsiderable quantity, depending largely on character of troops, military conditions, local environment and other factors. The subject of malingering, being closely allied to cowardice and lack of patriotism, is one of such unpleasant nature and so unflattering to national pride that it has been habitually ignored by all countries. Casual readers of military history would be led almost to believe that it did not exist. Not a single instance of malingering is reported in the medical history of the Civil War in connection with the almost inconceivable number of 6,454,834 admissions to sick report which is there recorded. The reports of the Surgeon General likewise do not show a single case of malingering as having been reported among the 317,195 admissions during the Spanish War. Malingering has very recently been given a place among the subheads of the official nomenclature of disease, but the figures resulting therefrom must always be understatements and thereby misleading as to its extent. They will represent only cases which, admitted as doubtful, are proved by longer observation to be fraudulent. Naturally, the cases of malingering presenting themselves to the surgeon at sick call would not be admitted by him to sick report but be returned to duty without record if their fraudulent nature were apparent in the first place; and if not so apparent they would be admitted only as unrecognized masqueraders under another name and diagnosis. In the unavoidable absence of figures showing the actual existence and number of such malingerers, it has been much more pleasant to assume that while the hostile forces may be made up of unwilling hirelings and cowardly conscripts, our own are exclusively composed of high-minded patriots eager to undergo hardship and dare danger. But such convenient assumptions are, of course, absolutely unwarranted, as has been very abundantly demonstrated to every experienced medical officer. Armies, like communities, are made up of all kinds of individuals, dishonorable as well as honest. Malingering is undoubtedly one of the most

Digitized by Google

important factors contributing to unnecessary depletion of forces and inefficiency in time of war. To belittle or ignore its prevalence, or to refuse to clearly consider its evils, serves merely to their increase. Proper remedies for ills cannot be prescribed until their nature and extent have been fully recognized. Too many, in their effort to avoid any possible injustice to the individual, are willing to connive at probable injustice to the State. The whole humanitarian training of the medical profession is toward such end. The few medical officers who realize their dual functions as conservers of military strength as well as relievers of suffering are usually highly unpopular not only with the men, but with the very officers whose military efficiency they are endeavoring to promote. Action resulting in the return of a hundred malingerers to duty calls for no praise—a single mistake in refusing to admit what proves to be a really sick man to sick report brings censure. What wonder that the great majority of medical officers probably prefer to follow the safe, easy and more pleasant route—and give the benefit of the doubt to the soldier.

The first, and fundamentally essential step for both the unconscious or criminal malingerers in the production of such military absenteeism as is obtainable through the Medical Department, consists in securing enrollment on sick report and classification as part of the military disabled. This, usually secured from the surgeons of organizations at the front, furnishes a starting point from which alone the subsequent evils depending upon unnecessary transfers, sick furloughs and discharges for disability can develop. Unless the medical officer holding sick call, usually a junior of less experience, can be deceived or cajoled, a purpose of malingering to secure absenteeism fails at the outset. It seems, and is, no great concession to temporarily relieve a man from duty who says he is ailing and put him under observation in the regimental infirmary. Not to do so may prove an act of grave injustice, which all desire to avoid. But very far reaching dangers, which must be duly considered, attend this apparently innocent step. For this step places the man in the status of sick, takes him from the control of the company commander and puts him under that of the surgeon. He has

Digitized by Google

gained his first point—*separation from his company*—and relief from duty which it is desired to escape.

If a professional endorsement of an exaggerated or feigned condition is secured at this time, a start has been made through which subsequent steps, unless rigorously safeguarded, become easier. Once taken on sick report, the case arrives at the regimental infirmary in the status of having been found sick by a presumably competent medical officer. This status furnishes an effective fulcrum by which to secure further concessions, such as subsequent transfer out of the regiment to a field hospital. The surgeon deceived at sick call may be in charge of the case while in quarters, and having once formed an opinion concerning it, is not as likely to change it. If another regimental surgeon handles the case, the latter naturally takes into consideration the action and the presumed opinion of an existing disability of his professional associate and is undoubtedly, though very likely unconsciously, more or less biased in his judgment thereby. If the soldier continues his protestations of incapacity for duty, nothing is more natural than that he should in due time be transferred for further observation and treatment to the field hospital. This is an easy and convenient way of evading responsibility and disposing of a puzzling—possibly annoying—case, who, it is reflected, may after all really have something the matter with him. To the surgeons of the regiment a man more or less, temporarily absent, appears to make little difference to the army; they overlook the fact that the surgeons of other regiments have similar ideas and are engaged in similar practice. The magnitude of the aggregated result is unappreciated by the inexperienced, but is well illustrated in the following circular issued by Medical Director Tripler, of the Army of the Potomac:

HEADQUARTERS, ARMY OF THE POTOMAC,
Medical Director's Office,
THEOLOGICAL SEMINARY, VA., *March* 19, 1862.

* * * * *

"Upon the late march to Fairfax Court House a large number of men were sent into the general hospitals. In a great many instances these men were selected without any judgment. Hundreds were received with no disease that should have excused them from duty. Your attention is called to this, that you may take vigorous measures to prevent such an abuse in future."

Digitized by Google

But this official admonition proving unavailing, Medical Director Tripler wrote a circular letter to his Corps Surgeons on the same subject, in which the following vigorous statement occurred:

"If a camp is changed a load of sick who ought to be treated by their regimental surgeons is sent to me without authority of any kind. These men ought and must be treated in their regiments. The regulations of the Army make it the duty of the quartermasters to transport the sick on a march when called on to do so by the medical officer. (See paragraph 1100.) If the practice that has prevailed for the last three months is permitted to go on it may save trouble to the regimental surgeons and quartermaster's department, but it will destroy this army. If men can be sure of being sent home by being thrown upon the hands of the medical director of this army, the contagion of homesickness will spread till there is not a sound man left here to carry a musket."

The regimental surgeon sees field hospitals habitually near the regiment, and reasons that the case transferred thereto can and will be readily returned to duty after the closer observation and better treatment which is available through the greater resources present with that more elaborate medical establishment. In practice, however, such is not the case, for the administrative situation has now become much more complicated. Soldiers are habitually transferred from regimental infirmaries with a positive diagnosis of an ailment, though in a small proportion of cases this may be marked "undetermined." No case known positively to be malingering would be sent away from the regiment; cases transferred are assumed to be ailing. The medical officers of the field hospital therefore know officially that not only one but probably several of their professional confreres serving with the regiment have had professional knowledge of the case in question and have determined its condition to be sufficiently serious to require hospital treatment. They, too, are as anxious as the regimental surgeons to do no injustice to the patient; but even if the case strikes them on entrance as being suspicious of malingering, they are not at once in a professional position either to disregard the diagnosis of their regimental predecessors in the care of the case, or to formulate a new one. Such action very properly takes time—largely variable with the personal equation of the medical officers having the case in imme-

Digitized by Google

diate charge. They are doubly anxious that professional error by themselves, especially since it now raises the question of professional error in others, should be avoided.

Meanwhile, the malingerer has gained the second of his aims, viz: *separation from his regiment.* It is possible that, in due time, his subterfuges and frauds may be detected and he be peremptorily returned to his organization. On the other hand, many new contingencies are liable to arise to interfere with such return; his regiment may in the meantime have been ordered away from the vicinity of the field hospital, or the latter may be ordered largely or wholly cleared of patients in anticipation of its early movement. The first contingency offers the certainty of delay in which much may be accomplished by the dishonest to interfere with return. Under the second, the malingerer is almost assured of being sent back further to the rear to the next sanitary formation, which may, according to circumstances, be either an Evacuation, Base, or General Hospital, but in any case will be completely out of touch or ready communication with his organization and command. Unless a diagnosis can be positively reached indicating non-necessity for further hospital treatment, the soldier will scarcely be returned from the field hospital to the organization whose medical representatives lately regarded him as unfit for service therewith. And while in this or any other sanitary formation outside his regiment, he has gained his object of securing not only freedom from duty but separation from the military commanders who knew him best and understand his personality.

On being transferred from the field hospital to a sanitary formation in the rear, the malingerer in any large command has accomplished his next object, viz: *separation from his division.*

In each or all of the above mentioned sanitary establishments of the line of communications, base or home country, the undeserving transferred from the field hospital arrives with all the medical prestige attaching to the official and repeated confirmation of his claims and allegations by several sets of medical officers. That the latter may have been careless, undiscerning, overcredulous, unduly sympathetic—or that evacuation was more the result of military conditions than professional need—is not recorded on the man's transfer card. While liable in theory to

Digitized by Google

have his fraud detected at any time, in practice his position is proportionately strengthened and criminal intent is less liable to be suspected with every increase in the number of medical hands through which he has been passed. Every medical officer who has not found him fit for return to duty has by so much strengthened his apparently legitimate claim to further consideration and delay. Greater distance to his organization and command, difficulties of transportation, the slow movement of official correspondence and machinery, and professional unwillingness of the surgeons at the rear to overrule what they are naturally forced to assume as the sound judgment of medical officers at the front and along the line of communications, together with a situation far from the theater of war and corresponding inability properly to realize the need for men and the prevalence of absenteeism, combine to render diagnosis delayed and return slow. At these points, too, if not before, the undeserving will have attained a fourth and to him most important object, viz: *contact with civilian relief societies of a purely humanitarian nature, and with individual civilians whose sentimental and pitying nature make them more than ready to give innocent but willing assistance to his next step in the achievement of his dishonorable purposes.* He has now arrived at a point where if he plays duly upon the credulity and pity of such outside sources of aid, he may fairly hope to arouse more or less active political agencies in his behalf. If threatened with return to duty, he may arouse outside interference by statements that the doctors here have not understood his case though all the others had found him sick and that he should go to a General Hospital where better facilities for diagnosis are provided, or other specious plea which may sound eminently reasonable to the inexperienced, credulous and unduly sympathetic.

Should he be further returned to a General Hospital, as he very likely will be, and especially if such institution be in the state or locality from which he came, he will now be absolutely certain to secure the powerful assistance of tender-hearted relatives and friends, and of politicians willing to do anything to contribute to the advancement of their own interests. He has now achieved another object, viz: *separation from his field army* and escape from any control by the line.

Digitized by Google

After arriving at a General Hospital, the next move of the undeserving will be to secure a sick furlough. Even the most conscientious medical officer in command of such General Hospital can scarcely hold out against such local pressure as will usually be brought against him to secure this concession; if he does, our history shows that the chances are that the War Department will be successfully appealed to over his head. Outsiders naturally assume that the soldier must have been seriously sick or he would not now be where he is—all reflect that he is now, in any case, far from the scene of hostilities, that there will necessarily be delay in his return thereto, and that to give him the benefit of the doubt and a brief visit to home and friends will be no great concession. If successful in securing his sick furlough, and history shows that he probably will be, the malingerer has achieved his next object, viz: *escape from any direct military oversight and control whatsoever.*

Once arrived among his friends and relatives, the furloughed patient is in a position of independence in which he can safely defy effort of the War Department to bring about his return to duty. The record of his return from front to rear has now been officially and completely established as one of presumptive sickness. What more natural than that he should continue "sick?" Before the expiration of his sick furlough he will send in a medical certificate as to his continued unfitness for military service—securing this, if possible, from a reputable physician of kindly heart and professional credulity; from one whose suspicions are overcome by motives of personal policy; by purchasing it outright from some pariah of the medical profession; or, as a last resort, having one forged by his friends or himself. Under such conditions, the military authorities have no recourse but to accept an alleged medical statement, worthy or not, at its face value, as a warrant for extension of furlough. They have no time nor opportunity to investigate its source or merit. This method of delay may be continued indefinitely without danger to those whose homes are not readily accessible to medical and other agents of the Government. Orders to report for medical examination at some designated point can safely and successfully be nullified by further certificates of physical inability to make the necessary travel. If a rarely favorable condition permits him to

Digitized by Google

be visited by a Government agent and found apparently fit for duty, the malingerer can still escape the consequences of his fraudulent absenteeism by claiming a recent rapid return to recovery, in which he will be supported by others with statements which the Government agent is in no position to controvert. If not so visited, all that is necessary for the absentee is to send in an occasional certificate and do as he pleases, knowing that the time must soon come when the Government, who needs men at the front, will be forced to discharge him in order to fill his place. As from the necessities of war the Government is rarely in a position to send a medical officer to examine him, and as he reiterated his physical inability to proceed to any point where such examination can be carried out, nothing is left but to discharge him with a pensionable status on his own statements. He has now succeeded in his final object, viz: *complete separation from the military service under pensionable conditions assuring a steady income from the nation for life, not only for himself alone but for such family as he may have or subsequently acquire.*

The pen picture of the "Malingerers Progress," above drawn, is no fanciful one. While the details may vary, the general method is undoubtedly one which, in the history of the United States, has been successfully employed by the undeserving by the hundreds of thousands. It is not pleasant to have to set down such a statement, but the absolute truth of the latter will be apparent from the detailed discussion which follows relative to the individual factors on which it is based. That it will be true of all future wars in which we engage, unless we change the methods and policies which have prevailed since the establishment of the Nation, goes almost without saying.

UNNECESSARY ABSENTEEISM DUE TO SICK FURLOUGHS.

The outset of the Civil War found only 81 medical officers of the regular army of all grades remaining with the Union forces, and of these a number were of no great experience with troops. This little handful was utterly unable to properly leaven the mass of nearly 14,000 civilian medical men who, in various professional capacities, were first and last employed with the military forces.

Digitized by Google

The former class was accustomed to the detection and handling of cases of feigned disease; a phase of medico-military practice quite new, as a whole, to volunteer medical officers who differed little from the class of civilian doctors from which they had lately come except in the outward sign of wearing a uniform. Unsuspecting, overflowing with kindness—very likely in some small part dishonest—undoubtedly many became the easy victims and some the unholy partners, of malingerers and the homesick. Beside the influence of their humanitarian training, motives of policy tended to complaisance in the wishes of men coming from the same communities and to which, in the nature of things, both would very likely return. The same applied, in even greater degree, to doctors outside the army who were consulted by those desirous of leaves of absence or their extensions. Hence the Medical Department and its outside professional coadjutors offered such an easy and safe way to get away from the front, that it was no wonder that medical certificates very soon fell into such suspicion and contempt that G. O. 61, W. D., June 7, 1862, required that, in the case of officers, usually persons of some local influence, the certificate of disability written by a civil physician had to be "attested by a civil magistrate," and that G. O. 78, W. D., July 14, 1862, stated that "The many evils" which arose from the granting of sick furloughs "require that the practice shall be discontinued."

In the State Hospitals, later converted into U. S. General Hospitals, the condition was no better, and humanitarianism, not to say favoritism, ran riot. Returned to his own state, amongst his kith and kin, the disabled soldier was not slow to apply for sick furlough, a request which family and friends naturally supported in every possible way, from personal intercession to political intervention. Surrounded by such influences, the surgeons in charge of these great hospitals could scarcely be expected successfully to stand out against them. Many of these surgeons had local affiliations and but few were of military experience or trained to think in other than purely professional lines. Habituated to considering the interests of the patient as of first importance, they overlooked or disregarded the military side of the situation, issuing sick furloughs by the tens of thousands and scattering soldiers broadcast over the country quite oblivious to

Digitized by Google

the vast difficulties they were thus creating in the way of others charged with keeping the ranks full and returning those fit to bear arms. In vain did the military authorities endeavor to control the situation—they could have made short work of a few individual offenders, but unfortunately these offenders were almost as numerous as the total medical class they composed. And the War Department was not in a position to impugn either the professional judgment, honesty of purpose or humanitarian ideas of a vast number of medical men who represented the entire profession of the country in their military ignorance. The latter, the politicians, in their selfish aims and the sentimentalists carried away by irridescent ideas combined to make a force which could not successfully be opposed. It thus came about that the commands at the front were constantly depleted by scores of thousands through the issue of unnecessary sick furloughs, and herculean efforts to recruit up the army were largely neutralized by a steady seepage which might be small for each individual point of loss but totalled an amount appalling in its magnitude. As President Lincoln so graphically expressed it, the effort to keep the forces at the front recruited up was "like trying to shovel fleas across a bridge." While the amount of absenteeism thus engendered through the issue of unnecessary sick furloughs was variable and does not seem to be a matter of record in the published data of the Civil War, there can be no doubt that it was one of the chief causes of absence from duty among the vast number which should have been present with the colors—and were not.

Nor were the evil results of laxity by the surgeons, careless or criminal, in the retention of able bodied in hospital, the granting of sick furloughs and discharges for disability by any means limited to the Union forces. Among the Confederates, they perhaps operated to even a greater extent in the destruction of military strength and efficiency, as may be gathered from the following scorching indictment of the southern hospital service:

"GENERAL ORDERS, No. 4. HEADQUARTERS DEPARTMENT, No. 2, TULLAHOMA, *January* 19, 1863.

I. Owing to the great abuse practiced at the general hospitals in granting furloughs, under the provisions of Paragraph IV, General Orders No. 72, dated Adjutant and Inspector General's Office, Richmond, September 29, 1862, the authority to grant such furloughs is suspended until

Digitized by Google

further orders, that a thorough inspection and report may be made. No army can exist under such a system so loosely applied.

* * * * *

By command of General Bragg,

P. H. THOMPSON,
Assistant Adjutant General."

The foregoing was shortly afterward emphasized as follows:

"TULLAHOMA, *January* 28, 1863.

HON. JAMES A. SEDDON,
Secretary of War, Richmond:

I earnestly recommend that the system of sick leaves and furloughs be abolished immediately; they are usually obtained to escape service, and are draining our army. The sick can, in general, be better attended to in hospitals than at home.

J. E. JOHNSTON,
General."

In the East, General Lee took drastic measures to force the able bodied out of hospitals where they were improperly retained by complaisant surgeons who could see nothing in the making of war beyond their practice of an interesting and humanitarian profession.

"HEADQUARTERS, ARMY OF NORTHERN VIRGINIA,
February 15, 1864.

HON. J. A. SEDDON,
Secretary of War:

SIR:

I have caused lists to be prepared of the absentees from this army, with a view to adopt measures to bring back as many of the able bodied as possible before the opening of the spring campaign. * * * * * Many of them are absent at the hospitals. * * * I propose to send a commission, consisting of Surg. R. J. Breckinridge, medical inspector, Army of Northern Virginia, Surg. R. T. Coleman, Ewell's corps, and Surg. S. W. Langton, Hill's corps, to the hospitals in Virginia, South Carolina, North Carolina, and Georgia, with the authority to send back to the army all of these patients or detailed men who are fit for field service, and to report on those detailed on Government works or in conscript camps, whether their places may not be supplied by men now disabled. In order to give due authority to the commission, I respectfully request that it be appointed by an order from the Department. I hope you will take speedy action in this matter, as it is a matter of

Digitized by Google

extreme importance to get every able bodied man back to the field as soon as we can.

R. E. LEE,
General.

(Indorsement)

February 19, 1864.

ADJUTANT GENERAL:

Issue proper orders to sanction commission named.

J. A. S.,
Secretary of War."

General Upton, in his Military Policy of the United States, thus sums up the general situation for the Civil War outlined above:

"Malingerers and deserters, as well as deserving convalescents, had used the hospitals as half-way houses to their homes. For such as were hopelessly disabled, or seemed to be so, a system of discharge had to be devised which in its turn led to a speedy and permanent reduction of our military forces. This was done by General Orders No. 36, War Department, 1862. The first paragraph as we have seen, placed all General Hospitals under the control of the Surgeon General. The second gave the chief medical officer in charge of the hospitals in any city, power to cause certificates of disability to be made out for such men as, in his judgment, should be discharged from the service.

"The records of the War Department established the fact that certificates of disability were often a matter of barter and sale. This nefarious practice was by no means limited to particular localities. Wherever there was a regimental, field, temporary, post, or permanent hospital, medical officers were exposed to offers of bribery. The patriotism and integrity of the vast majority were superior to this test, but unfortunately, enough remained to swell the number of fraudulent certificates to hundreds of thousands.

"The State Hospitals opened up yet a broader field for the sale of discharges. It was through their agency, before the Government accepted their transfer, that soldiers in great numbers had returned to their homes. When efforts to get soldiers back became serious, another unwise order placed it in the power of physicians not in the military service, to procure for them either furloughs or discharges.

"Under the terms of the order, 'any soldier who had once returned to his village, or his home, could at any moment procure his discharge, provided a physician "in good standing" would honestly or corruptly sign a certificate—alleging as the cause either wounds or any disease save rheumatism—coupling with the certificate the further statement that there was no prospect of recovery within a reasonable time.' At first, 'after the certificate was rendered, there was still the provision that it must

Digitized by Google

be satisfactory to the military commanders. But for the majority of malingerers this condition might as well have been omitted;' and even this restriction was soon afterwards removed by an unwise Act of Congress."

This statement does not necessarily constitute any reflection upon the Regular Medical Department, for Upton goes on to say:

"In the work of reducing and paralyzing the national armies by discharge, three distinct classes of agents were employed. The first was composed of the surgeons and assistant surgeons of the Regular Army, and the staff surgeons of volunteers, all of whom received their appointments after rigid examinations and were commissioned by the President. The second class was composed of surgeons and assistant surgeons of volunteers, who, without any examination, were commissioned at the beginning by the governors of the States. The third class was composed of physicians in "good standing," who were alike irresponsible to the Government or the States.

"A comparison of the strength of the first and second classes will show that under the Confederate theory of war, so hastily adopted by the Cabinet and Congress in 1861, the organization and disorganization of our armies were left chiefly in the hands of the agents appointed by the States. The number of medical officers appointed by the President was 295.

"The total number appointed by the Governors, and without examination, was 3,177.

"The horde of physicians "in good standing" who, under orders could sign certificates of disability, cannot be stated, but there was at least one for every town where a convalescent deserved or desired a discharge."

"The number of men discharged in 1862, by means of the combined agencies referred to, approximated 100,000 men. The immediate effects of those discharges was to reduce all regiments in the field to mere skeletons; their permanent effect can be seen today in the system of pensions, which costs the people about $150,000,000 annually.

"The means of getting away from the army having been systematized and made easy, absenteeism rapidly increased.

"Thousands were furloughed, who henceforth remained away from their regiments, some guilty of absence without leave, others guilty of the capital crime of desertion."

But there may be some who would rest comfortable in the belief that conditions and methods shown above as obtaining in the Civil War no longer apply; that as a Nation we have taken to

Digitized by Google

heart the lessons learned at that time at the expense of so much inefficiency. To such, perusal of the following order, issued scarcely a hundred days after the outbreak of the war with Spain, is earnestly commended as showing how absolutely unwarranted is any such conclusion.

"GENERAL ORDERS,
No. 114.

WAR DEPARTMENT,
Adjutant General's Office,
WASHINGTON, *August* 9, 1898.

I. Sick and wounded soldiers sent to U. S. general or field hospitals will when able to travel be granted by the surgeons in charge one month's furlough: By the surgeon, the post or camp nearest to the home of the soldier; by the quartermaster the issue of transportation; by the commissary, the days for which commutation of rations while traveling is paid. Weekly reports will be made by the surgeons to the Adjutant General of the Army of furloughs so granted giving names, rank, regiments, and places to which transportation has been issued; also post-office address.

Soldiers granted furloughs in accordance with the foregoing will be instructed by the surgeons that on the expiration of their furloughs, if fit for duty, they must report at the nearest Army post, camp, or hospital for the purpose of being either sent to their regiment, or as provided for in paragraph II.

Those not fit for duty will be required to forward their furloughs, five days before expiration, to the Adjutant General of the Army, accompanied by the certificate of a reputable physician showing clearly their physical condition and the probable time required for their recovery.

* * * * *

II. The following instructions to provide for the disposition of enlisted men, patients in the U. S. general or field hospitals, who have made complete recovery and are able to do full duty, are published for the information and guidance of all concerned:

Soldiers, both regulars and volunteers, whose regiments are in the United States, will be sent by the surgeons in charge of hospitals to join their proper regiments.

* * * * *

The names of all men sent from general or field hospitals under these instruction, their companies and regiments, and the places to which they are ordered, will be promptly reported to this office by the surgeons in charge of hospitals, who will be furnished, by this office, with weekly printed statements of the stations of U. S. troops—regulars and volunteers—which statements will also show the location of the detachments of recruits belonging to regiments of the Regular Army that are not in the United States."

Digitized by Google

Under this order, which it must be remembered was issued during the period of active hostilities, the surgeon in charge of any army hospital was not only authorized then and thereafter to give sick furloughs to all soldiers not at once returnable to duty, but it was made mandatory upon him to do so. While some attempt was made to keep track of the addresses of the soldiers to be thus scattered over the broad area of the United States and keep them under quasi supervision, it is a matter of common knowledge that a vast number of soldiers thus furloughed disappeared from the ken of the War Department as well as organization commanders; that the former could not answer inquiries as to their whereabouts and that the latter did not know for many months—and in some instances not at all—their fate or the action of higher authority in their cases. So far as the military service is concerned, many of these absentees simply effaced themselves, and their services became unavailable until chance or personal willingness disclosed their whereabouts. The same laxity as to medical certificates which had proved the curse of the army in the Civil War was again complacently authorized. It was true that under the above order a "certificate of a reputable physician" was required to justify continued absenteeism, but who was to decide that the physician so certifying was "reputable," or who could determine whether a certificate so submitted was signed by a person with any medical qualifications at all? And if the soldier decided not to send in such certificate at the end of the period directed, the War Department would have been placed in the unmilitary and humiliating position it occupied in the Civil War, of having to appeal to the soldier to do what its own action had rendered it powerless to enforce.

That the mistake made in not attempting to keep control of the men thus furloughed by reason of sickness was early recognized was evident in the following order:

"GENERAL ORDERS,
No. 126.

WAR DEPARTMENT,
Adjutant General's Office,
WASHINGTON, *August* 25, 1898.

III. The following instructions are published for the information and guidance of all concerned:

All officers and enlisted men absent from their organizations on leave, furlough, or from any other cause, will at once report by letter to their

Digitized by Google

respective company or regimental commanders the date, cause, period, and authority of absence. In case the whereabouts of the company or regiment is not known to the absentee, the report can be forwarded under cover to the Adjutant General of the Army.

Surgeons in charge of hospitals and all post commanders will, at the end of each month, send to the proper company or regimental commander the names of each officer and enlisted man in the hospital or at the post, other than those belonging thereto, giving the cause of detention, date of arrival, departure, return to duty, or death, or any other information that may be pertinent to the case.

By order of the Secretary of War:

H. C. CORBIN,
Adjutant General."

But the harm was already done. The absentees were out of hand and many were undoubtedly never even reached by this order.

In the meantime, the War Department, stampeded by the prevalence of sickness in the military camps, and goaded by newspaper criticism, had further amplified the privilege of sick furlough to a point where not only any administrative medical officer but all independent line officers down to and including regimental and even lesser commanders were authorized to grant sick furloughs, as per the following orders:

"GENERAL ORDERS,
No. 121.

WAR DEPARTMENT,
Adjutant General's Office,
WASHINGTON, *August* 18, 1898.

I. In addition to the instructions published in General Orders, No. 114, August 9, 1898, from this office, regarding furloughs to sick and wounded soldiers, division commanders, when separated from the corps to which they belong, are authorized to grant furloughs to enlisted men, upon the recommendation of the division surgeon, and to order transportation to their homes of the men so furloughed."

"GENERAL ORDERS,
No. 173.

WAR DEPARTMENT,
Adjutant General's Office,
WASHINGTON, *Oct.* 6, 1898.

* * * * *

III. By direction of the Secretary of War, in addition to the instructions published in paragraph 1, General Orders, No. 121, August 18, and Circular, No. 41, October 13, 1898, the provisions of General Orders, No. 114, August 9, 1898, from this office, are extended so as to authorize a regimental commander, when the regiment is serving as a separate com-

Digitized by Google

mand, to grant furloughs to sick and wounded soldiers upon the recommendation of the regimental surgeon, and to order transportation to their homes of the men so furloughed."

Under these orders, the strength of the army was rapidly dissipated and absenteeism through the agency of sick furloughs ran riot. It is true that in the meantime a protocol of peace between the United States and Spain had been signed, but the final agreement was not ratified for six months. Not for several months after the protocol did the discharge of volunteer troops begin; and that it was the part of an intelligent military policy to keep the armed forces well in hand until all eventualities had been provided for was illustrated by the fact that months before the peace with Spain was officially concluded the formidable insurrection of the Filipinos had developed and was on our hands. The extent of this absenteeism caused by such sick furloughs cannot now be given, as the Adjutant General's Office declined to compile such information, but that it was unduly great, and that the War Department soon recognized and attempted to remedy the error it had made in so unduly facilitating the issue of sick furloughs, is quite well evidenced by the following order:

"CIRCULAR,
No. 41.

HEADQUARTERS OF THE ARMY,
Adjutant General's Office,
WASHINGTON, *October* 13, 1898.

* * * * *

The provisions of General Orders, No. 114, August 9, 1898, from this office, are intended to apply only to those soldiers who, by reason of severe wounds or serious illness, have been admitted into a general or division field hospital, and whose cases require a change of surroundings in the judgment of the surgeon in charge. Final action on furloughs to soldiers under treatment in division hospitals will be taken by division commanders.—(decision Sec. War, Oct. 13, '98)"

The last paragraph of the above was undoubtedly for the purpose of putting some check upon the pernicious activities of the Medical Department in unnecessarily depleting the commands, and indicates the recrudescence of the beginning of such a feeling of want of confidence in respect to full co-operation by the Medical Department in the maintenance of military purposes and recognition of military necessities as became so evident in the latter part of the Civil War.

Digitized by Google

It is of further interest to note that the provisions of G. O. 114, W. D., August 9, 1898, above quoted, authorizing the furloughing of sick soldiers by surgeons commanding General Hospitals, was later revoked by G. O. 114, W. D., June 22, 1899, thereby absolutely putting it out of the power of any medical officer to legalize absenteeism by reason of sickness without the final approval of line officers. The inference from the two last orders is legitimate that the War Department was convinced that the Medical Department had again not proven worthy to be entrusted with the power of granting sick furloughs and was forced to revoke an authority by which disintegration of its forces, under the specious guise of humanitarianism, had again begun. In the Philippines, orders prescribed that sick furloughs should be no longer granted on the recommendation of a single medical officer, but the individual concerned must be sent to the Division Hospital in Manila for observation, and final recommendation of a carefully chosen board of medical officers was necessary, to elicit an order authorizing departure for the home country.

The history of the Civil War, in respect to want of confidence by commanders in the recognition by medical officers of their military obligations, was repeating itself.

[TO BE CONTINUED]

Digitized by Google

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE CIVIL WAR—THE BATTLE OF BULL RUN.

By Captain LOUIS C. DUNCAN, Medical Corps, U. S. Army.

AT the outbreak of the Civil War there was in the United States Army neither plan, personnel, nor equipment for collecting the wounded from the battlefield; caring for them in hospital; or transporting them to the rear. The Army was small and, strange as it may seem, war was not anticipated. Even had it been expected, the case would have been little different, for at that time no nation had ambulance corps or field hospitals. They had not yet arrived. It seems that armies were then more illy provided in that regard than in the time of the First Napoleon, or even earlier. It was customary to extemporize crude hospitals of churches, mills, barns, and other unsuitable buildings in the rear of the lines. The first tent hospital in a pitched battle is said to have been used at Shiloh, where Surgeon Irwin took possession of a regimental camp that had been abandoned and converted it into a hospital.

This was no more a real field hospital than was the tent hospital provided by Isabella at the Siege of Antequera, four hundred years earlier. The real distinctive quality of a field hospital is mobility.

Larrey organized real field hospitals for the Grand Army. Still earlier the Army of King William in Ireland, the army that fought the Battle of the Boyne, had a fairly complete system of hospitals; including base hospitals, evacuation hospital, and marching (field) hospital.

This was in 1691. But the memory of these things had perished. Although the Army in 1861 had nothing like our modern field hospital, each regiment had a small hospital, provided with three hospital tents and certain supplies. Hospital corps there was none, but it seems each regiment had a hospital steward.

There was no ambulance corps whatever. Indeed ambulances, although used by Larrey fifty years earlier, had not been adopted

Digitized by Google

MILITARY ABSENTEEISM

'ates Army. No ambulances were used in the the later Indian campaigns on the plains. medical officers examined a number of ambu- .nmended that two be tried; but they had not been et ambulances suddenly sprung into existence and ed in the first campaigns of the war. The States and .ome spirited citizens were more progressive in this matter than the Army. These ambulances were, however, attached to regiments only.

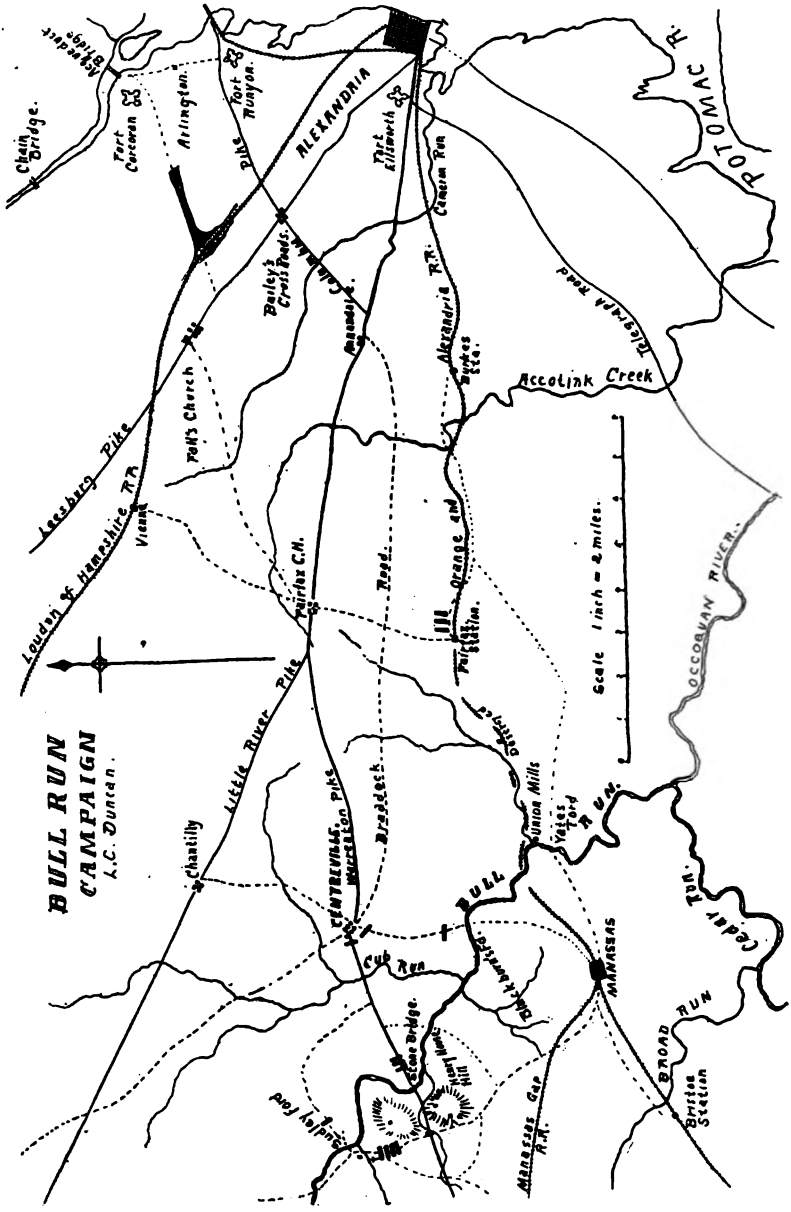
The Surgeon General of Pennsylvania offered to furnish a complete ambulance company (2 officers, 67 men, and 45 ambulances) for service with the Pennsylvania Reserves; but the Secretary of War took no notice of the offer. This was as late as September, 1861. Surgeon Tripler, a little later, when another similar offer was made, reported that all necessary and practical arrangements for care of the wounded had been made, when no real adequate arrangements had been made at all. They were not made until Letterman became Medical Director of the Army of the Potomac, July 1st, 1862. The miserable state of the wounded after Second Bull Run shows what arrangements had not been made up to August, 1862. Ambulance corps and field hospitals were only partially organized at Antietam, and were not complete until nearly three years of war had passed.

Although ambulance corps and field hospitals had been used earlier, in our Civil War they were begun anew and went through a course of evolution as though they had had no previous existence. It took one year to develop the plans and two years more to put them in complete operation.

MEDICAL EQUIPMENT AND PREPARATION.

General McDowell's army numbered about 35,000 men, organized in five divisions; two of which took no part in the engagement. It is not speaking exactly to say it was organized. It was not really organized and was an army in name only. The Medical Department was even more incomplete and inexperienced than the balance of the Army, which is saying a great deal. The Medical Director of the Army was Surgeon W. S. King, U. S. Army, with the rank of major. In his report he complains bitterly of

Digitized by Google



Digitized by Google

his lack of rank, and authority to enforce his recommendations. He seems to have had no conception of the duties of the chief medical officer of an army. He had an assistant, Assistant Surgeon Magruder, U. S. Army. Serving with the regular regiments there were several young assistant surgeons of the Regular Army, among them George M. Sternberg.

Surgeon King says there were a few ambulances which were distributed equitably among the regiments. It seems that there were enough for one to each regiment of 600 to 800 men. An estimate was made for twenty wagons to carry the medical supplies of the Army. This estimate was approved by the General but the wagons never came. Each regiment had some sort of a small regimental hospital; these were the only field hospitals with the Army.

To make matters worse, a few days before the movement began, orders were issued to put the Army in light marching order, all baggage and stores of every kind were left behind. This made it impossible to carry any medical supplies except what could be carried on the ambulances and field wagons. It looks impossible, but the same thing occurred again in 1898. But three ambulances were taken to Santiago.

A sample regimental equipment was that of the First Connecticut Volunteers, 600 to 700 men. This regiment had one two-horse ambulance and two wall tents for hospital use; no hospital supplies and apparently no litters. There were no men to use this equipment except the band men.

Some regiments probably had more than this, some not so much. And this was the medical equipment of an army marching out to immediate battle. The railroad base of the campaign was at Alexandria; on the day the troops marched Chief Surgeon King sent an officer to Alexandria to prepare a base hospital there. The railway was open to Fairfax Station, about twelve miles from Bull Run. The Army marched by the railway and parallel roads a few miles north.

The Army left Arlington and Alexandria on the 16th and reached Centreville on the 18th. On that evening there was a skirmish near Blackburn's Ford in which several were killed and some forty wounded. The Medical Director's impressions of this little affair are interesting. He says, "We pursued our

Digitized by Google

course on the road leading to the Ford and soon met the ambulances with the dead, wounded, and disabled men. One soldier had his face shot completely away; some were disabled by sunstroke and exhaustion. The ambulances were stained with blood. * * * I despatched Assistant Surgeon Magruder to Centreville to select suitable buildings for hospital purposes.

A hotel, a church, and a large dwelling were selected. An unexpected difficulty was the great scarcity of water. There were few wells in Centreville and these had been so exhausted by our thirsty men that they were nearly all dry. Water, procured with great difficulty, and placed in basins for washing the wounded, was snatched up and drunk by stragglers as they passed, before they could be prevented." The Medical Director also saw with astonishment that a hospital established by some regiment, refused to receive certain wounded men because they belonged to other regiments. The less severely wounded were sent back to Washington. The more severely wounded were kept at Centreville, where they were captured on the 22nd.

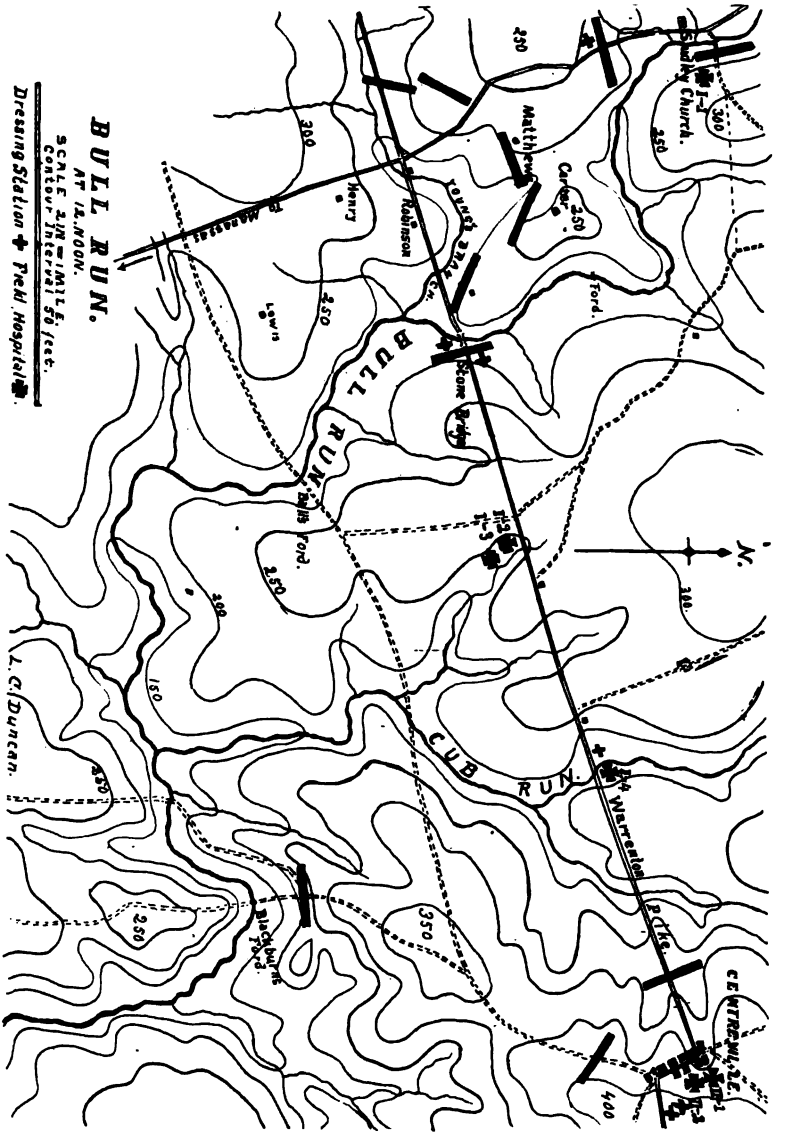
While the Army was here, two whole days, although the enemy was posted behind Bull Run but a few miles away, and a battle was confidently expected, no hospital arrangements were made in Centreville; no plan was made for transporting the wounded; everything was left to take care of itself, haphazard. The Medical Director telegraphed the Surgeon General for supplies for the approaching battle. The Surgeon General replied that they would be forwarded to Fairfax Station the following day, but they never came. It was not supplies, however, that were needed primarily; it was plans and organization. Had the supplies reached Fairfax Station they would have availed little or nothing.

THE BATTLE.

While it is not within the scope of this article to give a complete description of the battle, a brief review of its principal features is necessary to a good understanding of the efforts of the medical department and its success or failure.

The Battle of Bull Run was a political battle, forced on General McDowell by the politicians, before he was prepared and against his judgment.

Digitized by Google


BULL RUN.
AT 12. NOON.
SCALE 2 M = 1 MILE.
Contour Interval 50 feet.
Dressing Station ✚ Field Hospitals ✚
L. C. Duncan.
Sudley Church
Matthews
Carter
Robinson
Henry
Lewis
Stone Bridge
Ford
BULL RUN
CUB RUN
Warrenton Pike
Sudley Ford
Poplar Ford
Manassas
N.
300
250
350
400
200
150

He had an aggregation of about 35,000 men loosely organized in seven divisions. His force was largely composed of volunteers. The few militia regiments were inferior to our Guard regiments of today, while the volunteers, both men and officers, were entirely without experience in war, or even in peace training. The only reliable troops in the whole force were the eight companies of regular infantry under Major Sykes. The seven regular batteries seem to have been poorly handled and the few troops of regular cavalry had little or no influence on the contest. There was also a battalion of marines, but they were recruits and ran as fast as the volunteers. There were about 28 regiments engaged, most of which were from the eastern states. The average length of service of all the regiments was only sixty days.

The morale seems to have been on the side of the Confederates, who were spoiling for a fight. That the Northern troops were not quite so eager is shown by the action of a regiment of which the term of enlistment expired on the day of the battle. Despite the entreaties of the General this regiment marched to the rear to the sound of the guns opening the fight along Bull Run. A more craven action is not recorded in the whole war.

The plan of the battle was masterful and should have been crowned with success. The execution was faulty.

Of the seven divisions of the army one was left behind to guard the railroad, which had been destroyed as far east as Fairfax Station. This division may be dismissed. Miles' Division was left at Centreville, with one of Tyler's brigades. This reserve was never brought forward, thus leaving almost half the army out of the battle.

Tyler's Division was still as large as the other divisions, having three brigades left. This Division with those of Hunter and Heintzleman was to fight the battle. The plan was for Hunter and Heintzleman to make a wide flanking movement by the upper fords and fall on the enemy's left, while Tyler was to march straight ahead by the Warrenton Pike, and, when the Stone Bridge should be uncovered, cross and join the left of the main attack.

Everything being in readiness, orders were issued on the 20th. The troops marched out to battle at 2 o'clock on the morning of the 21st, a decidedly early hour, at which time, on the evidence of

Digitized by Google

so good an authority as Napoleon, the physical powers and moral courage are at their lowest. The left wing, though having the shortest distance to go, marched first. The troops of the right wing were delayed by Tyler's column and did not get started until 2.30. They had eight miles to march and did not pass Sudley's Ford till long after daylight. The weather was very warm, the roads were dusty, the pace was too fast, and these civilian soldiers were nearly exhausted when they reached the field. However, they crossed the Run and advanced along the Manassas Road until they met the enemy a half mile south of Catharpin Run. Howard's brigade was left behind to guard the Ford. The column was deployed about nine and the enemy gradually forced back. Burnside, who made the first attack, soon retired from the contest and his brigade did not again return to it.

Meanwhile Tyler had reached the Stone Bridge long before; his first gun was fired at 5.30. Sherman, who commanded one of his brigades, found a ford above the bridge, led his troops across, and joined in the fight with much resolution. Keyes also crossed but kept his brigade in a friendly ravine. Schenck did not cross at all.

All went well with McDowell. The enemy was driven back from one position after another until about 2 o'clock he was forced across the Warrenton Pike. The Stone Bridge was now open but no reinforcements were brought across. Howard was finally brought up, however, and the five brigades of Porter, Willcox, Franklin, Sherman, and Howard were formed for the decisive attack on the Confederates, strongly posted on the Henry House Hill.

The struggle for this small plateau was the decisive action. The Union forces had some success, but toward 4, Confederate reinforcements arrived from the Shenandoah Valley and, joining the left, flanked the Union right.

The inexperienced Union troops, exhausted by more than twelve hours of marching and fighting, lost courage and retired from the field; each column retreating by the road it had followed in the morning. There was no efficient pursuit and the retreat did not become a rout till Bull Run was past. Both retreating columns came together west of Cub Run and the whole army had to defile over one small bridge. Cub Run is an

Digitized by Google

insignificant stream, but it might as well have been a broad river, in so far as all vehicles were concerned. By this time the Confederates had sent some troops of cavalry and a light battery in pursuit. A few well planted shells on the Cub Run Bridge blocked it and all ambulances, wagons, carriages, and even guns not past this point were lost, together with a number of prisoners, wounded and otherwise. A whole battery, which had gotten thus far safely, was lost. Another battery which had been with Richardson, near Blackburn's Ford, and had not been across the Run, was stampeded and all its guns and caissons lost. It is difficult to believe that the regulars of these two batteries were not panic stricken as well as the volunteers.

The regular infantry maintained its organization and behaved admirably throughout the whole retreat. The marines were entirely new recruits, and in spite of the efforts of their officers, broke and fled, in confusion.

An attempt was made to rally the fleeing troops at Centreville that night and Miles' division made a brief stand, but they could not be depended on. The whole army was panic stricken and fled in the greatest disorder, never stopping till the Potomac was reached. Next day there was little or no organization left.

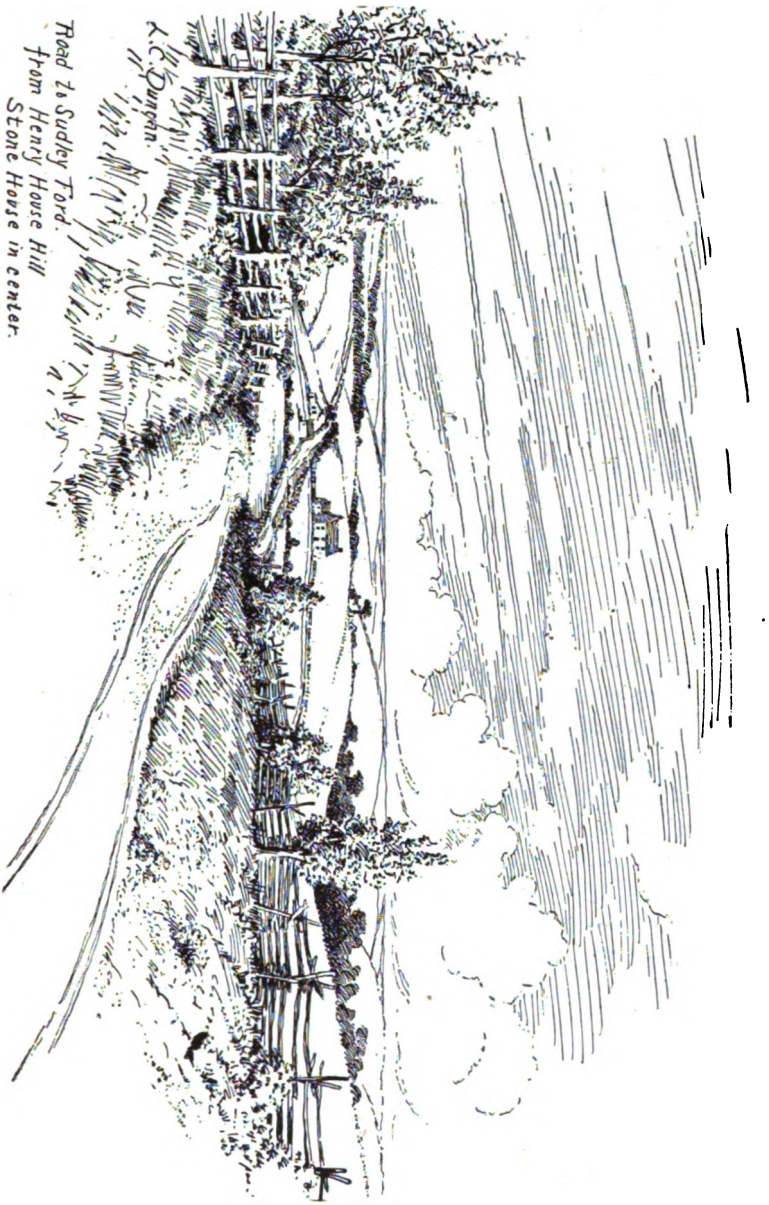
This retreat in panic from the field would have made the medical problem difficult for the most efficient medical department; as it was medical aid and care for the wounded was annihilated. They were left to their own devices.

CARE OF THE WOUNDED.

On the morning of July 21st the Army, or a part of it, marched out to battle. The two divisions of Hunter and Heintzleman made a turning movement to the right, crossed Bull Run at Sudley Ford and advanced along the road to Manassas.

When this column uncovered the Stone Bridge, Tyler was to have advanced by the Warrenton Pike, making the secondary attack. Of his three remaining brigades Sherman's crossed at a ford above the bridge and took an important part in the contest: Keyes' brigade also crossed but kept in the safe cover of friendly ravines. Schenck exercised even greater discretion, he did not cross at all. Ambulances followed the main column; as the

Digitized by Google



Digitized by Google

accompanying batteries were unable to cross with Sherman and Keyes, I take it that the ambulances were also unable to cross.

The troops that actually crossed the river and took some part in the conflict were the seven brigades of Porter, Burnside, Franklin, Willcox, Howard, Sherman, and Keyes; numbering with five batteries and a few troops of cavalry, about 18,500 men. The brigades averaged four regiments each; there being 28 regiments of less than 700 men. The force engaged approximated a modern division; with another division in the rear. There should have been eight field hospitals and the same number of ambulance companies. Of these six would have been in the neighborhood of Centreville.

These six could have cared for the seriously wounded (transportable) of the battle—about 800. Just how many ambulances were with the Army no one knows. It seems probable that there were as many as 48, but there was no organization.

Each regiment had one or more medical officers, who followed closely behind the lines. These officers attended the wounded on the field, removed them in ambulances, or, when that was impossible, collected them in buildings, the shade of trees, or in other protected places. All the evidence at hand shows that these men worked faithfully to the last, and a number volunteered to remain with the wounded where they became prisoners of war. But the work was individual, every man for himself, and small results were to be expected. There was regimental aid, nothing more.

The Medical Director accompanied the General throughout the day, galloping here and there about the field, but exercising no sort of control, or even supervision over the collection and care of the wounded.

In fact he followed the example of the General, who personally exhorted and led small bodies of troops instead of commanding the Army. The Medical Director carried instruments and dressings in his saddle bags and treated a number of men on the field; among others General Heintzleman, for whom he extracted a bullet, while the General sat on his horse.

Accompanying the flanking column, he noticed that the day was very warm and the men were exhausting themselves by running, which he deprecated to the General. He thought there

Digitized by Google

would be a brisk skirmish and the enemy would fall back; so he took out his note book and pencil and began to make a list of the dead and wounded.

He relates that he counted more than a hundred dead before seeing one wounded man. This indicates that the wounded got away in some manner. But the enemy did not fall back so obligingly and he gave up his task of counting. Being at length forced to believe that a real fight was at hand he sent Asst. Surgeon Magruder to Sudley Church to "Prepare it, and if necessary a couple of houses close to the church for the reception of our wounded; and to send forward the ambulances as soon as possible." This was the only field hospital established that day. It is true that the wounded made their way to various houses, but that was casual. To the Sudley Church hospital were brought some 300 of the 1,124 men wounded in the battle. As the ambulances had no place else to which to carry the wounded they unloaded them there. A number of surgeons gathered at the church casually and the wounded were cared for in some way until the place was captured in the evening.

Surgeon Magruder says, "Upon taking possession of the stone church I set men to work removing the seats, had the floor covered with blankets, buckets of water brought, instruments and dressings in place, operating tables improvised, and sent men to the nearby fields to procure hay for bedding. In about two hours the church was filled and I was obliged to take possession of three other buildings. As soon as I could get them cleaned out wounded men were carried into them until they were also filled. For want of other buildings many of the wounded were laid under the trees in the grove around the church. Several capital operations were performed before the rush of the retreating columns crowded the hospitals so completely that work for the time being was suspended."

Except these wounded near Sudley Ford none appears to have been removed from the field by ambulances. Some probably made their way back across Bull Run and were picked up there. All those who fell in the last struggle for the Henry House Hill were left on the field unless able to get away by their own efforts. Assistant Surgeon Gray, who was with the regular cavalry, says, "Few ambulances could come up and our attentions

Digitized by Google

Digitized by Google

consisted chiefly in conveying the injured men into the shade, giving them water, extracting balls, and &." Assistant Surgeon DeGraw, of the Eighth New York, says in his report, "In following the regiment to the field I entered a thicket in which lay a large number of wounded with only one surgeon attending them." He stopped to assist. These wounded were later taken to the church and he also went there.

The Surgeon of the Fifth Massachusetts, W. W. Keen, Jr., states that the drum corps of his regiment was with the ambulances in the field, and this was the only detail of men for hospital purposes. Surgeon Stearns of the First Connecticut says, "After the regiment had advanced about one mile I selected a house to be used as a hospital and hoisted the hospital flag; I gave orders to the musicians of the band, who had been detailed for that purpose, to follow the regiment and bring the wounded to the hospital. Water was abundant but we had no soups and no food except such as was in the haversacks. The wounded of other regiments were generally borne on blankets fastened to poles. The wounded of my regiment were so slightly injured that they walked from the field." The First Connecticut belonged to Keyes' Brigade which was so safely manoeuvred; the regiment had no killed and eight wounded, presumably slightly.

Assistant Surgeon John W. Foye of the Eleventh Massachusetts, made a report later, throwing a little light on the battle. He says, "The regiment was accompanied by one ambulance well provided with stimulants and surgical appliances, but without medicines or tents. The field hospital was established about a quarter of a mile from the front line when we engaged, but late in the day it was three-quarters of a mile in the rear. Up to two o'clock the Confederate wounded at the hospital nearly equaled our own. Until that time but few wounded were brought off by their comrades, but later it was not unusual to find a flesh wound escorted by half a dozen able men; it is needless to say they did not return to the field. * * * At three a medical officer of rank visited the hospital on his way to the rear and left it optional with the medical officers at the hospital to join him or remain. Nearly all the surgeons left us about half-past three. Three ambulances went away at that time. The only remain-

Digitized by Google

Digitized by Google

ing ambulance, belonging to my regiment, was captured about half-past five, within a hundred yards of the hospital.

All the wounded capable of being moved had been sent off to the rear. I estimate the number left at one hundred and eighty. All of them fell into the hands of the enemy. I saw no excisions. The major amputations, four in number, were by the circular method." This regiment, numbering seven hundred and fifty men, had thirteen killed and forty-five wounded.

When the Union troops fled from the field at four o'clock the wounded who had not made their way to the rear were left scattered over the whole terrain. Some had been gathered in the few houses and barns; there were thirty-six in the Matthews House; others were in ravines, groves, and thickets; many of the severely wounded lay where they fell. Some had temporary aid, many had none. It must not be thought, however, that the whole 1,100 wounded lay on the field. All who could possibly get to the rear did so and the number of wounded that reached Washington was astonishing.

Ambulances were sent out next day to pick them up and it is probable that one-half of all the wounded got away from the field and reached the lines at Arlington. The Confederate reports show 550 wounded sent to Richmond as prisoners.

When the retreating column passed Sudley Church the Medical Director made no provision for the abandoned wounded. There was some debate among the regimental surgeons there but to their honor a number volunteered to remain with the men entrusted to their care. The Geneva Articles were not then in force and they ran the risk of being made prisoners. Those who remained were Asst. Surgeons Sternberg and Gray of the Regular Army, Swift, Winston, and DeGraw of the Eighth New York, and Homiston and Swalm of the Fourteenth New York. This was about five o'clock.

Meanwhile the column hurried on toward Washington. A small force of regulars covered the rear. The Medical Director naively remarks of the retreat, "I may say it was one of the most unpleasant marches of the campaign." He accompanied the General but lost him in the confusion of the night. Next morning he "hastened" forwards to Washington to see about the supplies that never came. The officers that remained at

Digitized by Google

Sudley Church were made prisoners. The Confederate officers would not listen to their claim that they had remained behind to care for the wounded voluntarily and were entitled to immunity from capture. Next day they were taken to Manassas, leaving the wounded without aid, but were allowed to return again to care for them. On the morning of the 22nd a cold rain began and the wounded were in miserable plight.

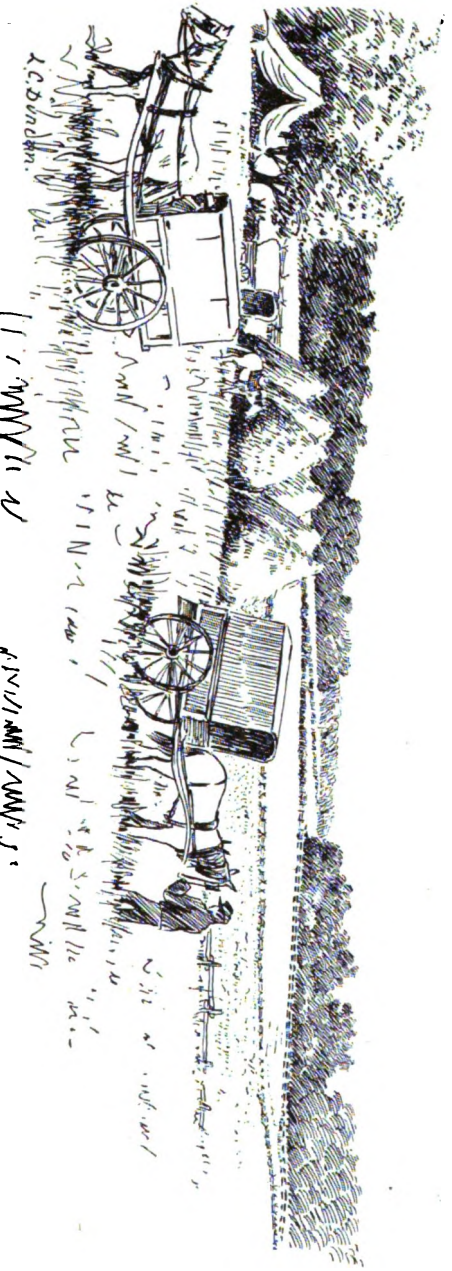
Surgeon Gray says that they collected as many as possible in the Lewis House and outbuildings which were soon packed with Union and Confederate wounded, many still remaining on the field. There were no instruments, food, or blankets. The wounded were gradually removed to Manassas in wagons, and from there to Richmond by train. The last load left the field on July 28th, just one week after the battle. The wounded were transported in rough wagons and on reaching Manassas were placed in freight cars, on the bare floor. They were from one to two days on the road: neither food, water, nor medicines were provided for the trip.

All this was of course not intentional but due to lack of experience and preparation. The Confederate wounded were doubtless treated in the same way.

Surgeon Gray was sent from Richmond to Charleston, Columbia, and Salisbury, and was only released on July 28th, 1862.

Asst. Surgeon Sternberg was more fortunate. He says, "A number of capital operations were performed at the church but owing to the want of food and stimulants and unfavorable circumstances most of the cases terminated unfavorably within twenty-four hours. On the following morning a cold rain began and continued almost without interruption for two days. The church would not hold all our wounded and many were lying in front of it. We made a frame about twenty by thirty feet and covered it with rubber blankets, a great number of which had been left on the road. * * * On Monday a small quantity of corn meal was obtained from a nearby house and some gruel made. A cup of this was given to nearly every man and this was all the food we were able to obtain for them until Monday evening, when all the medical officers were taken from Sudley Church to Manassas. On Thursday all but three of our number took a parole not to serve again during the war. Those

Digitized by Google



Two-wheel Ambulances, used in 1861.

Digitized by Google

of us who refused to take the parole were shortly after allowed to go out and attend to our wounded, on giving a parole not to attempt to escape for five days. * * * On July 25th I was sent to Centreville, where I found a number of men wounded in the affair at Blackburn's Ford. They were all doing well. On Sunday, my parole having expired, I made my escape from Centreville and after a tedious tramp, arrived in Washington the following Tuesday, footsore and weary."

Surgeon DeGraw relates how scarce food was at Sudley Church Hospital at first. But soon the surrounding inhabitants brought in soup, chickens, eggs, milk, butter, etc., so that there was sufficient.

Assistant Surgeon Charles R. Greenleaf reports that he removed about 200 wounded from the field of Bull Run to Washington some days after the battle. I am unable to find details of these wounded but believe that they were men who had gotten away from the field and were straggling along the road to Washington.

Many wounded reached Centreville during the day of the battle. The Surgeon of the 31st New York dressed two hundred there. All the ambulances were loaded and sent from the field with the retreating troops in the evening. The rout was a medley of troops, citizens, guns, wagons, ambulances, and carriages on a single road. When the bridge over Cub Run was blocked all vehicles not past that point were lost. How many ambulances were lost is not known. The official Confederate report lists but seven as turned in. There were probably others not turned in. If reports of eye witnesses are to be believed, fleeing ambulances were filled with officers while wounded men filled all the houses along the roads. The whole flight was disgraceful.

The total casualties at Bull Run were: killed 483, wounded 1,011, total 1,494, or about eight per cent of the force actually engaged. Sherman's brigade suffered most severely, losing 328 men, a much larger proportion of casualties than any other brigade engaged. It is remarkable that the proportion of killed to wounded is almost one to two. Sherman's brigade had 109 killed and 208 wounded. There was a very large list of missing,

Digitized by Google

many of whom fled, not only to Washington, but on to New York, or their homes.

An incident of this unhappy day, only slightly connected with the Medical Department, has never to my knowledge been commented on, and is worthy of notice. Dixon S. Miles, then Colonel of the Second Infantry, was in command of the Fifth Division which remained as a reserve at Centreville. The Colonel was sick on that day and his doctor foolishly prescribed brandy for him. By evening he was so drunk as to be unfit for duty; this on the evening of the Battle of Bull Run, when the stoutest hearted needed all his faculties.

A court of inquiry was convened in November; it found that the designation "drunk" was correct but recommended that no further action be taken. The sequel appeared at Harper's Ferry, just before the battle of Antietam; the most disgraceful and humiliating surrender of the War. If this court had recognized the fact that a drunk man has no more reason to be in command of troops than an insane man, the miserable affair at Harper's Ferry would never have taken place.

This is not said in condemnation of Miles. I know the world-wide motto, *De mortuis nihil nisi bunkum.* Poor old Miles was but the victim of a bad custom, and made such restitution as he could with his life.

The court, had it done its plain duty, could have prevented this piece of what Upton called imbecility. They knew that he was subject to imbecility.

A few days after the battle, Medical Director King went out toward Bull Run with a train of thirty-nine ambulances, in an attempt to succor the wounded and if possible remove them. But this effort was also doomed to failure. The ambulances wandered around the country for a while, General McDowell failed to secure the necessary permission from the Confederate authorities, and the ambulances returned empty to Washington.

So ended the last of the futile efforts to care for the wounded at Bull Run. We have already seen how they were removed to Richmond as prisoners of war.

The Medical Director in closing his scanty report of the battle says, "Our retreat from the ground operated like a curtain to conceal from view all knowledge of the subsequent history of

Digitized by Google

our cases, or the results of our ministrations." A welcome curtain that concealed or excused an almost total absence of preparation for or care of the wounded.

COMMENTS.

The making prisoners of medical officers at Bull Run seems to have been due to the general ignorance of the laws and customs of war of nearly every one at that time. Immunity from capture for medical officers and protection for the wounded had been practiced at various times for three hundred years. It was a regular custom in the time of Frederick the Great and also in the Napoleonic Wars. After the fall of Napoleon everything military declined and with the rest this custom fell somewhat into disuse. The suffering of the wounded at Solferino in 1859 led directly to the Geneva Convention of 1864. That the custom was known in 1861 is shown by the clamor made by the captured surgeons. On being taken to Manassas they managed to make their complaints known to General Beauregard. He, being conversant with the military usages of Europe, wrote a letter to the Secretary of War at Richmond recommending that these medical officers be set at liberty. That this was not done was probably due to the civil authorities.

From the fact that fifty per cent of the wounded may possibly escape from the field unaided it is sometimes argued that transportation need only be furnished for one-half the injured. This argument is erroneous for two reasons, either of which is sufficient for its refutation.

In the first place, the knowledge that adequate medical service is at hand has for troops a marked supportive value. Still more important, if aid is not at hand, many able-bodied men will leave the field under the pretext of assisting the wounded. During the recent war as many as six burly Russians were often seen assisting one slightly wounded man to the rear. There is no doubt that at Bull Run, Shiloh and other places the sight of wounded straggling to the rear, and the loss of the men accompanying them contributed to the depression and defeat of the troops.

These reasons are purely mercenary. There is another that occupies higher ground: the volunteer soldier offers his very

Digitized by Google

dearest possession to his country, his blood, his limbs, possibly his life. When that soldier is struck down shall his country leave him on the field suffering from cold, pain, thirst, even hunger; to die perhaps, without aid, unless he can drag himself away by his own painful exertions? Certainly when he gives his dearest possession the country should not be niggardly, when all it can give is dollars, but should supply an abundance of the best possible means for his succor.

The principal lesson of Bull Run is a very simple one—the value of preparedness. The wounded lying on the ground where they fell, for days, in the rain, without attention, or even water and food, furnished an object lesson that impressed some few observers. It was not long until a beginning was made at a system of better care for the wounded. A year later on the same field conditions were little better. But the very misery of these fields had its use; it spurred to action men in and out of the army until there was created a system of satisfactory relief for the wounded.

It was not alone the Union Army that suffered defeat at Bull Run, some widely prevalent ideas suffered a rude shock that day. One was that a collection of armed men constitutes an army; it was demonstrated that a number of civil practitioners, however highly qualified and patriotic they may be, do not constitute a competent medical department for an army.

Unfortunately these ideas, like the army that day, were only hard hit. They survived and still exist to trouble us.

No previous plans, no organization, no enlisted personnel, no supplies, no ambulance corps, no field hospitals, no convoys for wounded, no evacuation hospitals—nothing could be expected in results. It is true that all advance formations would have been captured; but they would have served their purpose. Yet no particular person is to blame for this miserable neglect of the wounded. The era of scientific care of the wounded had not arrived. Even had our present organization been then in vogue it would have made no difference. As we had no Army we should of course have had no Medical and Hospital Corps. Three years had passed before the Medical Department was in a satisfactory condition. The nation that depends on scraping up an

Digitized by Google

army after war begins must take the time to do it, and in the meantime will suffer.

The suffering of the wounded at Bull Run shows the natural result of an inadequate Medical Department; it also by contrast makes apparent the immense advance made and the excellent results secured in the later campaigns when the Medical Department was fully equipped, thoroughly organized, and ably administered. If the work of the Medical Department at the beginning of the war is a thing to be ashamed of, the work at the close of the war is a thing to be proud of.

In spite of the scanty numbers and slight equipment of the Medical Department of the Army today, it is with a feeling of comparative satisfaction that one contrasts it with the Department in 1861. At that time the Medical Department was conservative to the verge of inertia.

It was not only behind the armies of Europe but it was behind the public knowledge and opinion at home. Volunteer regiments fresh from civil life had as good medical equipment as regular regiments. Ambulance corps were urged on the army by civilians long before Letterman adopted them. The first combination of regimental hospitals and ambulances into brigade organizations was in General Grant's volunteer army at Fort Donaldson, in February 1862, under the management of Surgeon John H. Brinton, U. S. Volunteers. The Sanitary Commission was at times in advance of the Medical Department of the Army, and at one time stepped in and took charge. Today, on the contrary, the Medical Department may be justly called, in the political phraseology of the times, progressive. It runs ahead of civil progress at home and of the armies of the world abroad.

Witness the work of the Reed Board in making possible the elimination of yellow fever; the work done at Panama; and, probably more important than either, the present work of rendering the army immune to its most dangerous enemy—typhoid. In this line it is ahead of all European armies and far ahead of cities and other civil communities.

As to the care of the wounded on the battlefield the Medical Department of the Army needs no urging from any one as to adopting new devices. It is eagerly on the lookout for any new scheme or method that will render the present plans ever more

Digitized by Google

excellent. It seeks to foresee all difficulties and provide for overcoming them if possible.

The Surgeon General of the Army in 1861 was no doubt a worthy gentleman, he was about as much prepared for war as were the people of San Francisco for an earthquake. An army, in all its parts, has the same relation to the Nation that a fire department has to a city. It must always be prepared for its main function, and must be prepared to respond instantly, for rebellions and invasions are like fires, they are much more easily suppressed at the start than after they have gained headway.

APPENDIX.

Extracts from Army Regulations, 1861.

HOSPITAL ATTENDANTS.

1293. The senior medical officer will select the cooks, nurses, and matrons, with the approval of the commanding officer. Cooks and nurses will be taken from the privates, and will be exempt from other duty, but shall attend the parades for muster, and weekly inspection of their companies at the post.

1294. * * * The allowance of hospital attendants for troops in the field will be, for one company, on steward, one nurse, and one cook; for each additional company, one nurse; and for commands of over five companies, one additional cook.

1323. The Secretary of War will appoint from the enlisted men of the army, or cause to be enlisted, as many competent hospital stewards as the service may require, not to exceed one for each post.

1337. Upon the march or in battle, medical officers will habitually be attended by an orderly, carrying a hospital knapsack.

AMBULANCES AND TRANSPORT.

1330. The followng schedule of transports for the sick and wounded and for hospital supplies will be adopted for a state of war with a civilized enemy:

4. For a regiment of ten companies; two four-wheeled ambulances, ten two-wheeled ambulances, and four two-

Digitized by Google

wheeled transport carts; and for greater commands in proportion.

TENTAGE.

1336. The following will be the allowance of tents for the sick, their attendants, and hospital supplies: for ten companies; three hospital tents, one Sibley tent, and one common tent.

BATTLE SERVICE.

735. Before the action, the Quartermaster of the division makes all the necessary arrangements for the transportation of the wounded. He establishes the ambulance depots in the rear, and gives his assistants the necessary instructions for the service of the ambulance wagons and other means of removing the wounded.

736. The ambulance depot, to which the wounded are carried or directed for immediate treatment, is generally established at the most convenient building, nearest the field of battle. A red flag marks its place, or the way to it, to the conductors of the ambulances, and to the wounded who can walk.

737. The active ambulances follow the troops engaged to succor the wounded and remove them to the depots; for this purpose the conductors should always have the necessary assistants, that the soldiers may have no excuse to leave the ranks for that purpose.

738. The medical director of the division, after consultation with the Quartermaster-General, distributes the medical officers and hospital attendants at his disposal, to the depots and active ambulances. * * * He will take post and render his professional services at the principal depot.

739. If the enemy endanger the depot, the Quartermaster takes the orders of the General to remove it or strengthen the guard.

740. The wounded in the depots and the sick are removed, as soon as possible, to the hospitals that have been established by the Quartermaster-General of the army on the flanks or rear of the army.

Digitized by Google

TYPHOID PROPHYLACTIC IN THE NATIONAL GUARD.*

By Captain W. P. MORRILL, Medical Corps, Maryland National Guard.

I DO not propose to go into a discussion of the merits of typhoid vaccination; that is now a mere matter of medical history, nor into a scientific study of its principles; that has been covered by those far better qualified than I; but I do wish to give a little personal experience with the practical side of vaccinating a brigade of National Guardsmen, in the hope that it may be of assistance to those of my brethren in the National Guard who have the problem still before them.

The matter was first discussed in Maryland in the spring of 1910, but conditions did not seem to be just right and the matter was dropped until after the summer camp. That summer, Maryland sent two regiments of Infantry, one company of Hospital Corps, and one troop of Cavalry to the Government Maneuver Camp at Gettysburg. On their return typhoid made its appearance in the troop—eleven troopers out of a total personnel of forty-four being stricken, with one death (1). This, with an exceptionally high typhoid rate in Baltimore, provided a fertile soil for our seed and Lieutenant Foster's report on the epidemic in the company of Engineers at the same camp (2), together with Major Russell's report of inoculations in the army (3), and that of Drs. Richardson and Spooner on antityphoid injections in Boston Training Schools (4), were sufficient to convince the powers that be that we were on the right track.

The Chief Surgeon, Major McGlannan, communicated with the colonels of the two city regiments and arranged a talk on sanitation before the Officers' Lyceum of each regiment. This talk, given by the Chief Surgeon, was really a history of typhoid in war, from the Franco-Prussian to the Spanish-American—emphasizing the much greater mortality from typhoid than from

*Read and discussed at the 20th Annual Meeting.

Digitized by Google

bullets and dwelling especially on the 20% morbidity and 80% of total deaths of our Spanish-American War.

Following this, his assistant, the writer, traced the rise of typhoid vaccine, beginning with Wright's work in South Africa and later in India and ending with Major Russell's report of inoculations in the regular army, then a description of the pathological physiology of typhoid, of the method of preparation of the vaccine and its administration, showing how this simply builds up an artificial immunity exactly as the disease itself does, but without the discomfort, suffering and danger. Behold the seed had sprouted!

In order not to miss the psychological moment we had come prepared to begin operations. The meeting adjourned, the sterilizer started and the first volunteer was "shot" on the spot.

Arrangements were then made for the acting Sanitary Inspector to go through each regiment, taking one company at a time, giving them a talk and vaccinating all who would volunteer.

The company officers were first cautioned that in case they did not care to take the injections it would be of great assistance if they were conveniently absent, to which they agreed in practically every instance.

The company would be marched into the room where the shirt-sleeved surgeon and his sergeant were discovered preparing sterilizer, syringe, iodine and vaccine with all their morbid glamour. The surgeon was at once transformed into a fakir selling Kickapoo Indian Sagwa, or soap wrapped in five dollar bills. A talk of three to five minutes usually sufficed, recounting King Typhoid's awful toll in wars of the past, the horrible example of the Spanish-American, which some of them had witnessed or experienced, and the experience of Troop A, at Gettysburg. Then the impossibility of escape, its inevitable appearance in camps of any duration, its high rate in cities—carriers, flies, infected water, etc. A short description of the vaccine and means by which it confers its protection and a scrupulously *careful and impartial statement of the reactions, both local and general, to be expected.*

By this time the officers had their blouses off and sleeves rolled up, the sergeant painted the spot with tincture of iodine and with a joking remark to the subject at just the right time not a

Digitized by Google

suspicion of a flinch crossed his face. The first sergeant of the company with roll book was installed as record clerk on account of his familiarity with the names, rank, service, etc., of the men. He called from the book so that every man who refused must bear the jibes of his comrades, and the spirit of bravado often saved the day. Often, to justify himself, the man would make some excuse which could usually, however, be overruled or arrangements made to give him the injections at some more propitious time.

Unprofessional, undignified and unbecoming an officer you may say. Perhaps so. But out of 97 men present one night it brought 89 volunteers and on the three "first nights" in that regiment out of 342 present 204 volunteered, despite the fact that one captain who happened to be an anti-vaccinationist, or anti-vivisectionist. or "New Thoughter" of some kind, lined his company up and told them he did not believe in this sort of "tom-foolery," that he went through the Spanish-American War without being ill and attributed it to the fact that he had never allowed the doctors to get their "dope" down him. This resulted in our getting an opportunity to talk to his men, and we only got one of them, who came in after the captain had left the armory.

But the first injection is not the whole story—a large number of those who willingly volunteered for the first injection flatly refused the second, others simply kept out of sight. The reasons given are various, but the most common one is that the local reaction has caused them to lose a day's work and pay. The first objection is difficult to meet as the local reaction does not seem to be any less following the second than following the first injection. Then the whole argument has to be repeated, and a strong point in it is the fact that the first dose does not confer protection but simply prepares the subject for the second and third doses. If, however, the general reaction is the objection that is more easily met by the fact that it is rare to get a sharp reaction from the second when the first has already given one.

While it is, of course, advisable to meet the men on regular drill nights, each alternate week preferably so as to give a fourteen, rather than a seven day interval, between injections, it is often desirable, after all who will have submitted to treatment on the regular drill night, to appoint as supplementary dates, Saturday nights, so that their reaction will fall on a holiday and their

Digitized by Google

work not be interfered with. It must be added, however, that this should not be announced until necessary, as an early announcement will result in many of the men delaying until the supplementary dates, and not putting in an appearance even then.

A word as to outfit, assistance and technique, may not be amiss. As it is not always convenient to use an ordinary sterilizer, I had made a small sterilizer for use with an alcohol lamp. It is 4½ inches long, by 2½ inches wide, by 1½ inches deep, of heavy retinned copper and fitted with folding legs so it can be carried in the coat pocket. A small metal alcohol lamp, a 1 cc. tuberculin syringe, a bottle of iodine with brush, three needles with extra washers and wires, a small pair of forceps and a small three cornered file for nicking stem of ampoules, complete the outfit, and all fit inside the sterilizer.

As to technique, we simply painted an area 2-4 cm. in diameter with tincture of iodine, allowed it to dry and stabbed through it. This is very simple, perfectly safe and to my mind the most satisfactory method of all. The site chosen has been the dorso-lateral aspect of the upper left arm near the insertion of the deltoid. A word of caution here, however. To tighten the skin for the puncture, do not grasp the whole arm and draw tight with underlying tissue.

This delays absorption, promotes leaking, and I, at least, find it difficult to assure myself that the point of the needle is not in the skin or muscle, but accurately subcutaneous. A far better way is to pinch up the skin, insert the needle between the thumb and forefinger with a quick stab and then if in injecting an indurated area forms too quickly withdraw the needle slightly as you inject and thus distribute the vaccine more evenly in the tissue. As the needle is withdrawn an instant's pressure with the left forefinger over the needle track will prevent any possible leakage.

Too much importance cannot be placed on this technique as a severe local reaction is almost certain to cause a refusal of the next injection, and a "leaker" in addition to the loss of effect destroys confidence in the operator and we must all remember that the men do not view the matter as we do. They generally regard it as "injecting some poison into their system" but take us on trust and in order to retain their confidence we must be scrupulously careful in all our technique.

Digitized by Google

As to assistance, a Hospital Corps sergeant to apply the iodine, attend to the sterilizer and open ampoules, and the first sergeant to call the names and keep the records, have proved very satisfactory. This is scarcely as elaborate as the method described by Lieutenant Fletcher (5), but with it I have been able to inject 89 men in one evening, two and one-half hours, beside giving the preliminary talks to each of the four companies, and this I think, is sufficient for our needs in the National Guard.

In conclusion our results may be of interest. The injections were started on February 3rd. On July 14th the mean strength of the brigade, then in camp, was 1,616. Of these 412 had had three injections, 238 two injections, and 204 one injection, a total of 852. While we do not consider our work completed at all, we do feel that a good start has been made. The men are all familiar with it, many demanded it in the last two or three weeks before camp, and it has even been used as an inducement to enlistments, as we, of course, claimed and believed, Major Russell's vaccine to be superior to any put out by the proprietary firms and as it was issued for military purposes, its use was strictly limited to the personnel of the Brigade.

By carefully following up our men since camp we are already accumulating evidence to prove the danger of going into camp without its protection and by next year we hope to have at least 80% of the Brigade fully protected.

Further than this, if the Militia pay bill passes, I think our chief surgeon will recommend that the full series be made a requisite to enlistment or re-enlistment, and this I am confident will be approved by the Adjutant General.

Then if called to our country's service we will go feeling that we may be of some use other than as material for epidemiological statistics, and at taps will enjoy our bedding roll to the full, without dreams of Chickamauga and Tampa.

REFERENCES.

1. McGlannan and Morrill, Military Surgeon, October, 1911.
2. Antityphoid Vaccination, Geo. B. Foster, J. A. M. A., LV-P., 1808.
3. The Prevention and Treatment of Typhoid Fever with Antityphoid Vaccine, Major Russell, Boston Med. & Surg. Jour., CLXIV-1.

Digitized by Google

4. Antityphoid Inoculations as Introduced into Certain Training Schools for Nurses in Massachusetts, Richardson and Spooner, Boston Med. & Surg. Jour., CLXVI-1.
5. A Safe and Rapid Method for the Administration of the Antityphoid Vaccine, Jno. P. Fletcher, J. A. M. A., LVI-14, Apr. 8, 1911.

DISCUSSION.

Colonel T. E. Carmody, Surgeon General, N. G. Colorado, stated that he has had good results in inducing men to take the prophylactic and that it has been offered as an inducement to enlistment. In order to prevent severe reactions it is his practice to have men lie down for thirty minutes.

Digitized by Google

REPORT OF THE U. S. ARMY BOARD FOR THE STUDY OF TROPICAL DISEASES AS THEY EXIST IN THE PHILIPPINE ISLANDS.*

By Major WESTON P. CHAMBERLAIN, Medical Corps, U. S. Army; Captain EDWARD B. VEDDER, Medical Corps, U. S. Army; Captain JOHN R. BARBER, Medical Corps, U. S. Army.

THE Board for the Study of Tropical Diseases as they Exist in the Philippine Islands has the honor to submit the following report of its work for the quarter ending September 30th, 1911:

CONTINUED ABSENCE OF BERIBERI FROM THE PHILIPPINE SCOUTS.

The favorable situation as regards beriberi, which we have reported from time to time, has continued during the last quarter. There was no admission from the Scouts for beriberi in July and only one in August. We have now a record of fifteen consecutive months with only six cases of the disease. This showing is to be contrasted with a rate of over 600 admissions *per* year in 1908 and 1909. During the last nine months the ration has been the same as in 1908 and 1909 except for the use of undermilled rice.

During the quarter we have inspected many samples of undermilled rice submitted by the Subsistence Department. The grain now being furnished the Scouts is an excellent grade of rice with white pericarp, and a large amount of this pericarp is left on the kernel. There are very few broken or unhusked grains. This type of rice is, of course, considerably darker than the highly milled article, but it is not unattractive when cooked and has a much better flavor than does polished rice. We have heard of no complaints from the Scouts in regard to undermilled rice since the use of the original red rice (Filipino No. 2) was discontinued.

FURTHER EXPERIMENTS TO DISCOVER THE NEURITIS-PREVENTING SUBSTANCE IN RICE POLISHINGS.

In our last quarterly report we detailed the result of experi-

*Report made to the Surgeon General, U. S. Army.

Digitized by Google

ments with fowls which showed that the substance which prevents polyneuritis gallinarum was soluble in cold 95 per cent alcohol and in cold water, was dialyzable, and probably was not a phosphorus compound since the neuritis-preventing extract contained only an infinitesimal amount of P_2O_5. Our analysis of the neuritis-preventing extract at that time showed it to be of the following composition:

Total solids,	1.34 per cent.
Ash,	0.03 per cent.
Phosphorus pentoxide,	0.00165 per cent.
Nitrogen,	0.0406 per cent.
Sucrose,	0.88 per cent.

During the last quarter we have continued work along this line and have excluded several more substances from the list of possible neuritis-preventing elements, a part of this work having been embodied in a special report (7). We first eliminated sucrose from consideration by three series of experiments. In the first series we used our extract of rice polishings after the sugar had been removed by repeated fermentation with yeast. This sugar-free extract still contained the neuritis-preventing substance. In the second series we fed fowls on polished rice combined with a solution of chemically pure sucrose. These fowls promptly developed neuritis. In the third series of experiments we filtered the neuritis-preventing extract through bone black (animal charcoal). As is well known sucrose readily passes through this substance. The filtrate contained the sucrose, but when fed to fowls in conjunction with polished rice it would not prevent neuritis. The neuritis-preventing principle remained behind in the charcoal.

This last series of experiments showed that the neuritis-preventing element has an affinity for charcoal. This is an important observation and may be of much assistance in identifying the substance.

After deducting from the 1.34 per cent of solid matter the 0.88 per cent of sucrose, and small quantities of certain other substances which in previous reports we have shown to be of no value in preventing neuritis, there remained 0.4 per cent of solids in which to search for the neuritis-preventing element. With the

Digitized by Google

aid of Mr. R. R. Williams, of the Bureau of Science, analysis of the remaining solids was begun with the following results.

A preliminary analysis showed that the extract contained considerable amounts of non-proteid nitrogenous substances. Such substances, including asparagine, phenyl-alanine, amido-valeric acid, arginine and others, are commonly found in seeds and other parts of plants, and of these, asparagine, glutamine and arginine occur most widely and plentifully. Analyses of the extract were therefore made to determine the presence of these substances with the result that arginine was found in considerable quantity and histidine, glutamine and asparagine were shown to be present in small quantities.

There was considerable reason to believe that one of these "amide" substances might be the protective element which was contained in our extract, and we therefore tried a series of experiments with them. Groups of fowls were fed on polished rice combined with the arginine and with the histidine recovered from the extract. These fowls were not protected against neuritis. Feeding experiments with pure amido-acids were also tried, using for this purpose glycocoll or amido-acetic acid, asparagine or amido-succinamic acid and succinamide. These experiments were also entirely negative, and the great bulk of the amides contained in the extract were thereby excluded from further consideration.

Since an accurate quantitative analysis of all the "amide" substances contained in the extract of rice polishings would be very arduous and time consuming, we have not attempted to obtain it, but from the amounts of amides which we obtained we can form a rough estimate that they comprise at least 0.2 per cent of the 0.4 per cent of hitherto unknown substances. There is left then only about 0.2 per cent of solid matters for us to work on in the future. We already have determined the nature of some of the substances contained in this remaining 0.2 per cent of solid matter, and they are now being tried in feeding experiments. Since so little remains to be tested it will be seen that we are nearing the end of our search for the neuritis-preventing substance, and we have hopes that we may be able to report its discovery in the near future.

On the chance that either lime juice or nucleins might be preventive, we tried each of these substances in conjunction with

Digitized by Google

polished rice and both failed to prevent polyneuritis gallinarum. This work was done in the earlier part of the quarter, prior to that reported in the preceding three paragraphs.

It has long been known that a decoction of *mongos* (*Phaseolus radiatus*) called by the Dutch *Katjang idjo*, would prevent beriberi. To determine if the ordinary dried white bean contained the neuritis-preventing principle we fed a series of fowls on polished rice combined with a filtered decoction of white beans. The fowls were protected. This is an important point in connection with the providing of a beriberi-preventing dietary for native troops and laborers. Beans are more easy to obtain than *mongos* and are more liable to be eaten with relish. *Mongos* were not liked, as a rule, by the Philippine Scouts.

BEARING OF OUR FORMER STARVATION EXPERIMENTS ON THE RELATIONSHIP OF POLYNEURITIS GALLINARUM AND BERIBERI.

In a recent publication Fraser and Stanton (8) state that in their experimental work with human beings no man developed beriberi *who had subsisted on polished rice for less than eighty-seven days.* This is an interesting observation in connection with our previous work which showed that some fowls will develop neuritis when deprived of all food (10). No reference could be found to any cases of neuritis occurring among groups of men who had starved. The reason is now clear. It is evident that in complete starvation the victim is deprived of the neuritis-preventing substance present in a well balanced dietary. Whether he will manifest symptoms of neuritis depends upon whether nerve degeneration or death is the first to occur. The "incubation stage" of beriberi is eighty-seven days, a period of time so great that no man could live to that point without food. The "incubation stage" of polyneuritis gallinarum averages about thirty days, but in several cases the disease has developed as early as the nineteenth day. Fowls given nothing but water have survived in certain instances as long as twenty-three days. It is therefore apparent that in some fowls deprived of food the symptoms of neuritis may become manifest before death from starvation can occur. This explains a fact which had caused us considerable perplexity and had led us to question the identity of polyneuritis gallinarum and beriberi.

Digitized by Google

THE EFFECTS OF ULTRA-VIOLET RAYS ON AMOEBAE AND THE USE OF THESE RADIATIONS IN THE STERILIZATION OF WATER IN THE TROPICS.

During the quarter the Board has completed a series of observations on the influence of ultra-violet rays on amoebae and the results have been made the subject of a special report (4) which will be briefly summed up here. The source of the rays was a quartz mercury vapor arc lamp owned by the Bureau of Science and it was through the courtesy of the officials of the Bureau that we were able to perform the experiments. The amoebae used belonged to a free-living species isolated from a human stool. We feel sure that these organisms were not pathogenic, but it is believed that any agent which is detrimental to the growth of such free-living organisms will prove even more efficacious against the pathogenic amoebae which are more susceptible to unfavorable conditions, as shown by the fact that hitherto it has been impossible to cultivate them on artificial media.

The experiments were performed in a number of ways, using solid and liquid media and water, both clear and muddy, which had been inoculated with large numbers of active and encysted amoebae. It was found that on solid media, at a distance of 4 inches from the lamp, the active forms of amoebae were killed after a 5 seconds' exposure to the rays and that they were killed as easily or more easily than *Bacillus typhosus* or *Bacillus dysenteriae,* (Shiga). In fluids both active and encysted amoebae were killed by the rays at a distance of 4 inches after 5 seconds' exposure. An unknown species of *Balantidium* also was killed in 5 seconds.

Practical water sterilizers using the ultra-violet radiations have been constructed recently (5) (6) and deliver large quantities of potable water at a very low cost. They automatically cease to allow water to pass in case the current through the lamp is interrupted. Our experiments show that ultra-violet rays will destroy not only the bacterial causes of disease but also such protozoal enemies as amoebae and balantidia. This is a very important point in favor of these sterilizers for tropical use, in view of the fact that sand filtration cannot be relied on to remove amoebae. Moreover, the low operative cost, the simplicity of management and the automatic action should make the ultra-violet apparatus

Digitized by Google

a valuable means of sterilizing water for tropical communities, both large and small.

The applicability of such an apparatus to the needs of the military service in time of war seems to us to be a favorable field for investigation. As far as can be judged from the printed descriptions of the apparatus it appears that a sterilizer capable of supplying drinking water for a division, together with the necessary dynamo and gasoline engine, could be carried in an escort wagon. If mounted on an auto-truck the gasoline engine could be dispensed with and the power derived from the motor of the truck. Sterile water would be available in a few minutes after the apparatus was put into action. One great advantage in this sterilizer for the military service is that the water is neither heated nor altered in taste. This is an important desideratum when dealing with soldiers whose objection to the flat taste of boiled water is well known.

DIPHTHERIA IN THE PHILIPPINES.

In a previous quarterly report as well as in a special report (3) the Board has called attention to the by no means infrequent occurrence of diphtheria in the Philippines. Recently the matter has again been brought to our attention by the occurrence of four cases of diphtheria which came under the cognizance of the military authorities. One of these cases was at Pettit Barracks, two at Camp McGrath and one in Manila. The following table shows the reported incidence of diphtheria in Manila during the last eleven and one-half years. The figures were obtained through the courtesy of the Bureau of Health.

TABLE I.—*Incidence of Diphtheria in Manila, 1900 to Aug. 31, 1911.*

Year	CASES													Deaths
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Total	
1900 ------											1		1	1
1902 ------		1	1		2								4	4
1903 ------									1		1		2	2
1904 ------		1							1	1	1		4	4
1905 ------						1	1	2		1	1	1	7	7
1906 ------	2				1		2	1	2				8	8
1907 ------	1	2	1		2	1	1	1	3	1	2		15	11
1908 ------			1		1	1	2	1			10	2	18	9
1909 ------		1					2	1	1		1	1	7	0
1910 ------	12	3	2	2	4	1		2	2	2	1	3	34	11
1911 ------	4	1	4	13	5		4	2	---	--	---	--	33	12
Total----	19	9	9	15	15	4	12	10	10	5	18	7	133	69

Digitized by Google

Population of Manila, 1907: Americans and Europeans, 9,079; Chinese, 18,028; Filipinos, 195,292; others, 1,143. Total, 223,542.

The number of reported cases is rapidly increasing, probably as a result of greater accuracy in diagnosis in more recent years. Of the 133 cases at least sixty-two were Filipinos. The figures are sufficient to show that diphtheria is to be expected not infrequently in the Archipelago. The too common belief that the disease does not occur here or occurs only with extreme rarity should be dispelled, since it has led in the past to failures to diagnose certain serious cases which undoubtedly would have been subjected to cultural tests if the illness had occurred in the United States. It is interesting to note in Table I that season seems to exercise no influence on the incidence of the disease in Manila, whereas in temperate climates the number of cases greatly increase during the colder months. This uniformity of incidence is probably due to the comparatively unvarying temperature conditions existing here.

EXPERIMENTS TO TEST THE FINENESS OF MESH NECESSARY IN BRONZE NETTING TO PREVENT THE PASSAGE OF ANOPHELINAE AND STEGOMYIA.

These experiments were directed by the Surgeon General over a year ago, with a view to determining whether the Philippine *Anophelinae* could pass through 16 mesh bronze gauze, and have been going on at intervals ever since, many delays having occurred as a result of lack of the desired material, both animate and inanimate. The observations have been recently completed and made the subject of a special report which will be briefly summed up here. Tests were carried out with 8, 12, 14 and 16 mesh gauze and with both horizontal and vertical gauze partitions. Starvation tests were made where a single layer of netting separated the mosquitoes from food and water, and sexual attraction tests where unfertilized females were separated from freshly hatched males by a double partition of the mesh to be examined. A practical test was made by sleeping under a 16 mesh bronze gauze bed net in a locality where anophelines were very numerous.

It was found that 16 mesh bronze gauze was impervious to the

Digitized by Google

following insects: *Myzomyia rossii, Myzorhynchus barbirostris, Pyretophorus freerae* (Banks), *Mansonia annulifera, Mansonia uniformis, Culex fatigans* and *Culex microannulatus. Myzomyia rossii,* which is as small as any common Philippine species of the *Anophelinae,* was unable to pass through either 16, 14 or 12 mesh metallic gauze, but did go through 8 mesh cotton netting.

Mosquitoes of the genus *Stegomyia calopus* were found to pass through 16 mesh bronze gauze with considerable ease. Out of several dozen insects which were tested, eight males and nine females succeeded in going through the 16 mesh netting. One female effected a passage through a double partition of the gauze to join the male on the opposite side. Our experience agrees with that of Darling, who found in Panama that *Stegomyia* could pass and *Anophelinae* could not pass through 16 mesh metallic gauze (9).

Although the 16 mesh netting will probably keep out all malaria-bearing anophelines found in the Philippines, the Board considers its use inadvisable because it does not keep out mosquitoes of the genus *Stegomyia,* which are not only extremely annoying insects, but are a potential source of danger in case yellow fever should be introduced into the Archipelago.

OBSERVATIONS ON THE ARNETH COUNT IN FILIPINOS INOCULATED AGAINST TYPHOID.

In view of the rise in the leucocyte count which follows antityphoid inoculation, and with consideration of the following assumptions, namely, that antityphoid immunity is largely phagocytic, and that the Arneth count is probably a reliable index of phagocytic activity, it was thought worth while to make a series of such counts on inoculated Filipinos. The men of the 30th Company, Philippine Scouts, had each received 2 doses of vaccines prepared in the laboratory of the Army Medical School. Of twenty men, whose blood was examined, eight had been given doses from batch 33 and twelve from batch 37. The first dose was injected in October and November, 1910, and the blood specimens taken in August, 1911, thus allowing a period of from seven to eight months after the last doses before the examinations were made. From the data published by Russell (1) it is prob-

Digitized by Google

able that a considerable fall in agglutinating and phagocytic activity had taken place by the end of this time, but it is very unlikely that all evidences of immunity had disappeared. At the distant post where these men were stationed, it would have been impracticable to obtain fluid blood for quantitative tests, and this was not attempted. For the same reason leucocyte counts were not made.

In making the counts, the slides were stained by Wright's stain, the best ones, that is, the thinnest smears, were selected, and counted differentially and according to the Arneth classification. Two hundred cells were counted on each slide for the differential, and 100 polynuclear cells were classified, using the standards adopted by Chamberlain and Vedder in their work on the Arneth classification with regard to race (2). As it was essential that their results should be used as a standard, their methods were followed as carefully as possible. It was found very difficult to make satisfactory counts in many of the slides furnished us, on account of unequal thickness; for this reason many cases had to be disregarded and only twenty out of fifty-five were studied. The results compared with similar counts for unvaccinated natives are shown in Table II.

TABLE II.—*Differential and Arneth Counts for Healthy Filipinos and for Those Who Have Received Antityphoid Vaccination.*

	Differential count, per cent					Arneth's classification, per cent					Index (Arneth.)	Index (Bushnell's & Treuholtz.)
	Polynuc.	Small lymph	Large lymph	Eosins	Mast cells	I	II	III	IV	V		
50 healthy Filipinos (Chamberlain and Vedder)	52.2	29.9	6.6	10.6	0.7	27.5	38.3	25.8	7.5	0.9	95.8	78.7
20 vaccinated Filipinos	52.3	31.3	4.2	12.1	0.1	21.6	43.8	28.5	5.6	0.5	95.4	79.7

Chamberlain and Vedder found a low polymorphonuclear count and a marked shift to the left in the Arneth count for the blood of healthy adult Filipino males. It will be seen in Table II that there is no difference between the differential and the Arneth counts for the vaccinated and the non-vaccinated. It can, there-

Digitized by Google

fore, be concluded that there is no evidence of morphological changes in the leucocytes of Filipinos seven or eight months after the last injection of antityphoid vaccine.

ROUTINE WORK ON TYPHOID FEVER.

During the last three months the routine work on typhoid fever has included the following examinations:

Results	Widal Tests	Cultures From Stools	Cultures From Urines	Cultures From Blood
Positive	10	0	0	3
Negative	22	11	8	6
Total	32	11	8	9

The 32 serum reactions were performed on the blood of 29 individuals. The 10 positive agglutinations were made on the blood of 7 Americans and 1 Filipino. The 11 stool cultures were made on the feces of 9 Americans and the 8 urine cultures on the urine of 8 Americans. Of the 3 cases from which positive blood cultures were obtained two were Americans and 1 Japanese.

Since our report for the last quarter, 3,000 cubic centimeters of antityphoid vaccine have been prepared and 1,120 ampoules, containing 2,805 cubic centimeters, have been issued to posts.

MISCELLANEOUS WORK.

During the quarter a large amount of work has been done in the compiling of the data on the blond-brunette observations, in preparing a report relative to blood pressure in the tropics, on certain features of typhoid agglutination and on the occurrence of fusiform bacilli and spirochetes in various lesions in the Philippines. None of these matters is yet ready for final report.

SPECIMENS FOR ARMY MEDICAL SCHOOL.

During the past three months the following specimens have been collected and shipped to the Curator of the Army Medical Museum for use of the Army Medical School:

Digitized by Google

August 28th, 1911.—Ninety-six slides aestivo-autumnal malaria. Contributed by Lieut. Lee R. Dunbar, Medical Corps, Camp Ward Cheney, Cavite, P. I.

September 26th, 1911.—Seventy-two slides of quartan malaria. Contributed by Lieut. Lee R. Dunbar, Medical Corps, Camp Ward Cheney, Cavite, P. I.

REFERENCES.

(1) Russell, F. F., The Control of Typhoid in the Army by Vaccination. New York State Journal of Medicine, December, 1910.

(2) Chamberlain, W. P., and Vedder, E. B., A Study of Arneth's Nuclear Classification of the Neutrophiles in Healthy Adult Males and the Influence Thereon of Race Complexion, and Tropical Residence. Philippine Journal of Science, Sect. B, Vol. VI, No. 5.

(3) Chamberlain, W. P., Diphtheria in the Philippines. Bulletin Manila Medical Society, July, 1910.

(4) Chamberlain, W. P., and Vedder, E. B., Effects of Ultra-Violet Rays on Amoebae and the Use of these Radiations in the Sterilization of Water. Philippine Journal of Science, Section B, Vol. VI, No. 5.

(5) Foulds, M., Sterilization of Water by Means of Ultra-Violet Rays. Journal Royal Army Medical Corps, Feb., 1911, Vol. XVI, No. 2, page 167.

(6) Thresh, J. C., The Practical Sterilization of Water by Means of the Ultra-Violet Rays of Light. Lancet, Dec. 24th, 1910, page 1849.

(7) Chamberlain, W. P., and Vedder, E. B., A Second Contribution to the Etiology of Beriberi. Philippine Journal of Science, Section B, Vol. VI, No. 5.

(8) Fraser, H., and Stanton, A. T., The Etiology of Beriberi. Studies from the Institute for Medical Research, Federated Malay States, No. 12, 1911.

(9) Darling, S. P., Studies in Relation to Malaria. Report of the Isthmian Canal Commission.

(10) Chamberlain, W. P., Bloombergh, H. D., and Kilbourne, E. D. Study of Influence of Rice Diet and of Inanition on Production of Multiple Neuritis of Fowls and Bearing Thereof on Etiology of Beriberi. Philippine Journal of Science, June, 1911, Section B, Vol. VI, No. 3, page 177.

Digitized by Google

REPORT OF SKIN COMPLICATIONS OF GONORRHOEA.*

By Passed Assistant Surgeon W. S. PUGH, U. S. Navy.

THE literature upon the subject of the skin complications of gonorrhoea is so meagre that I take the liberty to report a few cases which came under my care in the service.

I have seen so many cases of this kind that I wonder that more has not been written on the subject.

The idea of gonorrhoeal skin complications appears to have originated with the French and we find it first appearing in the literature in the real attempt to describe it by M. Ladouzy, of the Paris Charity Hospital, in 1881, although suggestions relating to this had already been made ten years before by Seall, Villier, and Pediux. Pediux, in a memorable address before the Societe des Hospiteaux Medical in 1872, stated, "Gonorrhoea is able to cause many and varied manifestations as opthalmitis, rheumatism, skin eruptions, etc."

The symptoms produced in these cases give every evidence to show that there must always be a certain amount of bacteremia in these cases. This is certainly strikingly exemplified in the skin cases resembling a scarlet rash with typhoid symptoms and these cases are not rare, or at least so rare as most of us are inclined to think.

The skin lesions of gonorrhoea can be divided into three groups.

"A." Diffuse scarletinaform or rubeliform.

"B." Erythema multiforme.

"C." Purpura.

There are perhaps others, but the above, I believe, cover those most commonly seen.

I have so far seen eight cases in the service upon which I have notes and shall attempt to group them as near as possible under the above table.

CASE NO. 1.

J. A. C., Corp. Marines. This patient reported at sick call complaining of having had a severe chill during the preceding evening, after

*Read by title at the 20th Annual Meeting.

Digitized by Google

which he had felt feverish and perspired considerably and stated he thought he had malaria, but was also considerably annoyed by a rash on his body. Examination revealed a diffuse eruption very much like a scarlatina which he stated was first noticed when getting up at 6 a. m. At time of examination the eruption was diffused over the entire body and lower extremities. Head, neck, and arms were not involved, nor did they become so. Although the mode of appearance of eruption did not resemble scarlet fever, and that there was no scarlet fever in Cuba, the man was kept under observation. The next morning the patient called my attention to a slight urethral discharge, which, on examination, proved to be an acute gonococcus urethritis, and patient had a suspicious intercourse about one week previously. Under simple rest in bed the rash began to disappear, leaving the abdomen first, then the chest, and the legs finally, and in five days the eruption had vanished and there was no desquamation. A notable feature in this case was that as the eruption cleared up the urethral discharge was increasing; as to whether there was any biologic connection, I am not prepared to state, but it certainly looked very much like it. This condition was certainly a skin lesion of gonorrhoea, as patient never suspected a gonorrhoea until after the discharge appeared and he had taken no treatment of any kind.

CASE NO. 2.

B. L., a quarterman, yards and docks, reported to me that about two weeks previous he had contracted a gonorrhoea. For about two weeks he stated he did not have any discomfort aside from the discharge, except at times slight lassitude and pain in the back and extremities. Today, he states that when he arose in the morning he noticed over the left side of the neck a number of small red spots. On examination it was noticed that his features were somewhat drawn, the skin showed a slight increase in surface temperature, pulse 94. Upon further examination it was noted that a uniform redness was present over the lower extremities, from the inguinal region to the toes, over the thorax and abdomen there was a distinct redness which later became almost purple with a few intervening little healthy patches of white. This man had taken no internal treatment whatever, in fact, the only thing was the so-called "Brou injection."

On the second day the eruption over the entire body, neck, chest, abdomen, and legs was a very dark red and patient's temperature was 101 F. in a. m., and 103 F. in p. m.; he received no other treatment.

On the third day his temperature was normal and eruption was found to be disappearing from the neck, eruption fading from above downward, and by the fifth day it had entirely disappeared. No desquamation whatever was noted in this case, though Molires reports a case, like this, in which the desquamation was marked. The urethral discharge in this case did not change in any way during the eruption, and responded to ordinary methods of treatment.

This case was a typical scarlatinaform condition and while the condition was suspected of being gonorrhoeal, his isolation was deemed wise.

Digitized by Google

CASE NO. 3.

W. H., B. M., 3d cl. Age 21. Was seen at the home of his parents where he had been seen by a local physician and his condition thought to be variola. The eruption may have been somewhat variolate, but it really did not present any great resemblance to smallpox. Patient stated that about two days ago he noticed a gonorrhoeal discharge, having had sexual relations about five days previous, at the same time patient felt some pain in the back and limbs, eyes and throat felt sore, and he felt generally prostrated, much after the manner of an influenza case.

Examination showed a pinched and drawn face, the tongue dry and cracked, rapid pulse, frequent and shallow respiration, temperature 102.2 F. Skin shows an erythema covering the entire body, except the soles of the feet and the palms of the hands. Eruption was on the face, neck, and upper chest and, in color appeared a very light purple.

On the first day after the patient had been put under treatment at rest in bed the eruption began to fade and in two days had entirely disappeared.

CASE NO. 4.

J. L., a small Cuban boy, age 12 years, employed on the Naval Station, Guantanamo, Cuba. I was called to see this boy on one occasion by some Americans, who lived near him, as they thought he had the measles.

An examination of the boy showed a morbilliform rash over entire body and, as far as the rash went, it certainly was very similar to measles, there were, however, no catarrhal symptoms. Temperature 101.5 F. An examination of the fauses also showed a few spots similar to those of the skin. During the examination a profuse urethral discharge was noted, which boy stated was of three weeks' duration. Patient was placed at rest in bed and urethral condition treated. On the next day the rash began to fade and in two days had ceased to exist and there was desquamation.

CASE NO. 5.

A Boatswain's Mate, 2d cl., was under treatment for multiple gonorrhoeal arthritis who, after he had been under treatment for a month, suddenly showed a marked erthymatous condition much resembling an erthema multiforme in appearance. The skin was intensely itchy and numerous miliary vesicles were noted over these particular patches. This patient claimed never to have gonorrhoea previously to the attack which brought about his present condition, nor had he taken any treatment that could have produced a rash. At this time patient had no urethral discharge. Does not know when the rash first appeared, thinks that it appeared everywhere at the same time; condition is marked over the entire

Digitized by Google

body except the face. Massage of the prostate in this case brought to light large numbers of gonococci seeking shelter in the crypts of this gland. The skin eruption persisted in this case for ten days before it began to subside, and then did so under treatment by simple zinc oxide ointment.

CASE NO. 6.

J. K., Boilermaker. Appeared at the sick bay complaining of having severe chills. Temperature at the time 102 F., and a bluish red or purplish rash on chest and abdomen. Examination of this rash showed it to be a distinctly purpuric condition. I have been told by those of considerable experience, that this condition might have been a copaiba eruption, as it often produces conditions resembling purpura. In this case it could hardly have been so as the purulent urethritis did not appear until after the day I had seen him with the eruption. This rash began to subside in two days, and in four days had disappeared in toto.

These gonorrhoeal eruptions are in a vast majority of the cases classed as copaiba eruptions; but if we look up the literature we find that the exact characters are not those of the copaiba eruptions which show themselves, frequently by the pushing forward of a scarlet-like stain, usually pruritic and found frequently on the hands and feet, and at times on the other parts of the extremities and abdomen.

CASE NO. 7.

O. S., age 19 years. Was attacked by gonorrhoea and came under my treatment ten days after the symptoms were fully developed. Temperature at the time was 102 F., and complained of pain in the long bones, joints, and perineum. On the third day patient noticed what he called bluish spots appearing from time to time, on the face and limbs. These spots were slightly larger than a dollar and gradually spread over the body. They were distinct areas of a hyperaemia and were sore on pressure. Thinking that this condition might be a copaiba eruption, the copaiba was stopped, but it had no effect on the eruption, and about a week later it disappeared.

Two weeks later this eruption again appeared in a similar manner and again disappeared.

Fornier, Johnson, and Willis tell us that erythema multiforme and the rubeoliform eruptions are not the only ones which are liable to occur in the course of an acute gonorrhoea and as the following case will show.

CASE NO. 8.

H. W., G. M., 3d cl., age 22 years. In the first days of October patient noticed a profuse urethral discharge which was slightly painful, and for which he stated he had not received any treatment. Toward the middle of October, he noticed a beginning of loss of appetite, indefinite pains in

Digitized by Google

the extremities, and fever. Patient was brought to the Hospital on October 24, in a typhoid state, but the thing that attracted most attention was an eruption on abdomen and legs of an erythema multiforme, while face and neck were covered with a marked purpura.

The erythema eruption is made up of scattered parts ranging in size and shape from those of a half dollar down to a pinhead. Very few are scattered on abdomen; they are most numerous on the limbs. They are confluent on the anterior surface of the thigh, about the knee joint and the vicinity of the ankle joint, and are entirely absent on the neck and head, where their place was taken by the purpuric group.

The purpuric group are small and discrete. This case is particularly odd in that it contains two kinds of skin eruptions which are independent of any medication. The gonorrhoeal discharge during this period was profuse.

On the fourth day after admission temperature fell to normal and in six days the skin condition had disappeared. Gonorrhoea responded well to treatment.

It is thought by a number that skin eruptions in the course of a gonorrhoea are a mere coincidence, but as most of these recorded in the literature come under the classification already given, it seems to me that it is a little more than a coincidence.

We become more firmly convinced that we are correct in our supposition by finding of so many psuedo-rheumatic manifestations, eye irritations, etc., and in the latter there being no evidence of direct infection.

Theiry, of Brussels, states that the strict dependence of the joint phenomena and of the urethral affection having been definitely admitted, three principal theories were proposed to explain the relation between the gonorrhoeal and the general manifestations. 1st. That of the reflex action having in the urethra its starting point and attacking secondly the skin. 2nd. That of a gonorrhoeal virus. 3rd. That of a mild gonorrhoeal pyemia. The above is also agreed to by such eminent authorities as Fournier, Fereol and Lasague.

In Germany, Lewin and Casper are believers in the reflex theory. Lewin says it is a reflex, and states that this is particularly so in the last stages of gonorrhoea when it has become necessary to pass an instrument of some kind and, after a little roughness in handling the urethra, a skin eruption appears. He thinks that this is particularly true of the erythema multiforme group which he observed the most.

Digitized by Google

Senator and Kaminer says it appears more likely to consider the cutaneous manifestations of gonorrhoea as resulting from the penetration into the blood current of the infectious agent the toxin of the gonococcus, whatever that substance may be. The latter writers lean toward the bacteremia theory and which seems to appeal to the most of us.

Digitized by Google

GUNSHOT WOUND OF GALL BLADDER.

By First Lieut. CLARENCE E. FRONK, Medical Corps, U. S. Army.

THE following case is thought to be of sufficient interest to warrant its being reported, owing to the rarity of the injury and the peculiar manner in which it was inflicted.

About 5:30 p. m., October 2nd, 1911 an army officer while hunting near Camp McGrath, P. I., fired at a bird with what was presumed to be No. 8 shot from a number 12, automatic shotgun. Hearing an outcry, he discovered that at 250 yards distance in the line of fire, a Filipino woman, aged 50 years, had been injured. She was cooking rice and was sitting in a stooped position, facing him at the time the shot was fired. Not knowing the extent of her injury, she was brought to the post hospital where I saw her about 11 p. m.

Examination revealed a wound about 1/8 inch in diameter, 1½ inches below and 1 inch to right of ensiform cartilage. No wound of exit, but the eleventh rib, left side, was fractured at its center and the missile could be palpated just under the skin at this place. The wound of entrance was enlarged and by exploring with the finger, its entrance into the peritoneal cavity was confirmed. The woman was in a state of collapse, with weak, frequent and thready pulse and shallow, rapid respiration. Immediately before and during the examination she vomited a large quantity of clotted blood mixed with stomach contents.

The case clearly demanding surgical intervention and consent being given by the patient and relatives, she was prepared for immediate laparotomy.

Sterilization of the operative area was accomplished with 7% tincture of iodine. The operation was begun at 12:30 a. m., October 3rd, 1911, under chloroform anesthesia, it not being thought safe to use ether, working as we were with open oil lights.

An incision three inches long was made through the left rectus muscle. Upon incising the peritoneum, the abdominal cavity was found full of fluid blood which welled up from the region of the gall bladder. The latter was located abnormally far to the left; it being directly in the line of incision. The transverse colon was delivered and examined and then the stomach. No wound being

Digitized by Google

discovered in either and feeling certain that the latter had been perforated, owing to the patient having vomited a large amount of blood, an opening was made in the transverse meso-colon and the stomach examined posteriorly; but careful search revealed no injury. The liver and gall bladder were then examined and a perforation found in the fundus of the latter from which the blood was flowing freely. This wound was closed with a continuous silk suture reinforced by a Lembert suture which effectively controlled the hemorrhage. The patient's condition being extremely poor, a hasty search was made for further injury to the liver, pancreas, duodenum, etc., but none was found. The anesthetic was stopped, the blood mopped out with dry gauze, a quart of hot normal saline solution poured into the abdomen and the wound closed in layers without drainage.

The entire operation consumed about thirty minutes. Upon removal from the table, the patient's pulse was 140 to the minute and imperceptible at the wrist. She was placed in bed, surrounded by hot water bottles and given 1,000 cc. of normal saline solution into the median basilic vein to which she responded promptly. Salt solution per rectum by Murphy's method was begun and continued during the following 24 hours, taking in all about 3,000 cc. Convalescence was rapid and uneventful, the wound healing by primary union.

The missile was removed at the end of two weeks and proved to be an irregular shaped "slug" 'about .32-in in caliber.

The peculiar features of this case are:

A. The large amount of blood vomited with no injury to the stomach, the bleeding being from the cystic artery into the gall-bladder and then into the stomach by way of the cystic and common ducts and duodenum.

B. The possibility of a missile of such a size passing through this region with no injuries discoverable in the other organs and the excessive hemorrhage from the gall-bladder wound.

C. The manner in which a lead ball came to be in a load of "bird-shot" and the penetrating power it possessed at such a distance when fired from a shotgun.

My sincerest thanks are due Major Bratton and Dr. Kennedy for their assistance at the operation and during the after treatment of the patient.

Digitized by Google

BALANTIDIUM COLI AS A CAUSE OF DYSENTERY IN THE PHILIPPINE ISLANDS.

By First Lieut. H. R. WESTON, Medical Reserve Corps, U. S. Army.

AS it is only recently that the Balantidium coli has been thought capable of producing a primary erosion in the intestines, the study of two cases of infection from this infusoria may add a little to the sum total of knowledge on the subject.

That this organism was a secondary invader of chronic ulcerations, which owed their origin to other organisms, such as the tubercle bacilli and amoebae, has never been doubted; but that it was pathogenic in itself has been heretofore seriously questioned by Braun (Animal Parasites of Man, '06), Strong (Philippines Bureau of Science Publications), and other authorities on parasitology. Strong and Musgrave (in 1902) first recognized the Balantidium coli as a possible cause of dysentery in the Philippines. Daniels and Wilkenson (Tropical Medicine and Hygiene, 1909), were the first to maintain that the "Balantidium coli may cause ulceration and all the symptoms of the true dysentery."

This infection is not very common, even in the Philippine Islands; for the routine examination of the feces from 4,000 prisoners, confined in Bilibid Prison in Manila, showed the organism in only three cases (Bowman, Philippine Journal of Science. 1909). These three cases were described by Bowman in an instructive article, entitled—"Two cases of Balantidium coli infection, with autopsy"—before the Philippine Medical Association in February, 1909. The clinical symptims and pathologic findings in these cases all went to prove conclusively that this infusoria is capable alone of producing a severe dysentery.

In a service extending over almost two years at Camp Overton, on the north coast of Mindanao, P. I., where large numbers of the natives—both Filipinos and Moros—besides Chinese. Spaniards, and Americans, were admitted to the post hospital, only two cases of Balantidium coli infection were noted. It is hoped that the report of the symptoms and treatment of these two cases may throw some light on the question of the pathogenicity of the Balantidium coli.

Digitized by Google

Case 1.—Edwin ———, Pvt., Co. C, 1st Batt. Engrs., Camp Momungen, Mindanao, P. I. Born in Illinois. Aged 45 years. 20 years' service in the U. S. Army. Patient was on duty at the subpost of Momungen, when he was admitted to the Post Hospital at Camp Overton, on March 9th, 1909.

Family History.—Negative.

Previous History.—This was the first time that this soldier had been confined to a bed on account of illness for over 20 years, the last three years of which he had served in the Philippines.

Habits were very good; he was practically a total abstainer from intoxicating liquors.

Symptoms Previous to Admission.—There was no plant for distilling water at the subpost, where this man became infected; all of the drinking water was boiled daily. Occasionally a case of amebic dysentery was admitted to the hospital at Overton, caused by men drinking unboiled water while out on "hikes." There was considerable consumption of the native wild hog, which the soldiers were constantly hunting in the vicinity of Momungen.

For about three months patient had been feeling ill, beginning with diarrhoea, and complete loss of appetite. During this period he would become slighter better for a few days, only to be worse again later.

About four days before admission to the hospital he noticed blood in his stools for the first time. He had lost in all 20 pounds.

Condition on Admission.—His diarrhoea was worse than it had been at any time; he had about 12 movements per day. Patient suffered from general malaise.

Physical Signs.—His appearance was that of a man suffering from some severe form of malnutrition; he was anemic and emaciated.

Heart and lungs were normal. He had a few external hemorroids.

Laboratory Report.—The character of his stools was that of flocculent mucus, pus and blood; the feces were fluid in consistance, and contained numerous bacteria (ordinary).

A careful examination of the stools on several occasions failed to show the presence of amoebae; but disclosed the fact that they contained a ciliated infusoria, the Balantidium coli. The inoculation of a tube of modified agar-agar (according to the formula of Musgrave, Bureau of Science, Manila) with some of the feces from this patient showed large numbers of the balantidium coli after two days' growth; still no amoebae were found in the cultures on Musgrave's media.

These infusorias had the form and appearance of the ordinary balantidium coli, having a peristome lined with long cilia, containing two contractile vacuoles, a nucleus, and an anus at the terminal end, with marked longitudinal striations distinct and regular. After a few days the mature balantidium coli in a culture became encysted, when it assumed an oval shape, showed a very distinct ectosarc, and granular formation of the

Digitized by Google

entosarc. It remained encysted for a few days, and then developed into an active form again. By repeatedly reinoculating the growth on fresh media every three weeks one specimen was kept and studied for over four months, all of the life stages of the infusoria being watched.

Subsequent History and Treatment.—This patient was treated exactly like a case of true amebic dysentery—beginning with calomel and Epsom salts, followed by large doses of powdered ipecac. The case "ran on" very similar to a case of amebic dysentery, differing from the latter in that it did not respond to treatment with ipecac as readily, and that blood was not constantly in the bowel movements. Under the above treatment the patient's weight increased slightly, gaining three pounds in as many weeks. At no time in the course of the disease did the patient show any signs of fever. The pulse generally remained about normal.

The number of his movements decreased somewhat, but the character of them—dark and semi liquid—remained the same. The balantidium coli persisted for some time, but gradually became fewer in number, and finally entirely disappeared. Santonin was tried without any apparent benefit.

Inasmuch as this soldier had seen three years' service in the tropics, it was thought best to transfer him to the Division Hospital, Manila, with a recommendation that he be returned to the United States to complete his recovery. He was therefore transferred on the 26th of March, '09, marked "unimproved." At the Division Hospital the diagnosis was concurred in. Little improvement was shown here; and so the man was transferred to the United States. At this point the case was "lost track of."

My second case of Balantidium coli infection was in a Filipino Scout, named Santiago Quiambao, a man from the Maccabebe tribe, aged 32 years. He was admitted to the Post Hospital, at Camp Overton, from the same substation at Momungen (as the case above) on July 15, 1910.

Family History.—Negative.

Previous History showed no diarrhoea or dysentery before. No history of any illness could be ascertained. Habits were good; did not use spirits. These native scouts were in the habit of hunting the wild hog, and eating the meat constantly. All of the water had to be boiled regularly every day; but the order against drinking unboiled water was almost impossible to enforce among these native troops, especially when they were in the field on active service.

Present Illness.—Symptoms previous to admission. Patient felt perfectly well until ten days before admission, when he began to have diarrhoea with blood and mucus.

Condition on Admission.—He became worse, and was therefore admit-

Digitized by Google

ted to the Post Hospital at Camp Overton (from the substation at Momungen) suffering with all the classical symptoms of amebic dysentery; it only differed from the ordinary case of dysentery in that the number of movements were not so great, generally averaging about three or four in 24 hours, only once or twice reaching as many as five. Patient vomited occasionally. He had complete loss of appetite; there was a slight fever.

Physical Signs.—Well developed, but rather poorly nourished; he had lost considerable weight during the preceding ten days of illness.

Examination of the patient's stools showed them to be:—

Color—Brown.

Character—Fatty, frothy, sour smelling. Small amount of blood and mucus.

Consistance—Liquid.

Bacteria—Numerous (ordinary).

Paracites or Ova (of intestinal worms)—Negative.

Infusoria-balantidium coli (encysted)—Few.

Amoebae—Negative.

A culture from the stools was made on the modified agar-agar (of Musgrave).

This showed the motile forms of the balantidium coli after a few hours' growth. Further examinations of the patient's stools continued to show the balantidia, either in the fully developed form or encysted.

A culture of the stool (showing the encysted form) on July 29th showed the mature, motile form on the 31st.

Heart and lungs were normal. There was no fever after admission.

Subsequent History.—Patient was put on the regular ipecac treatment (as for amebic dysentery), being given grs. 10 twice a day without any noticeable effect for a fortnight. On August 1st and thereafter his movements decreased slightly, being on an average of three per day. But they remained liquid, or semi-liquid, with a large number of balantidia at every examination. Blood and mucus was noted on July 29th and August 9th. There was practically no blood after the latter date.

This case of dysentery seemed to be of a more obstinate nature, and of a more chronic type than the ordinary case of amebic dysentery. It responded less readily to ipecac than amebic dysentery generally does.

About August 10th the patient began to improve in appetite. He remained on liquid diet for six weeks (in all) or until August 25th, at which time his stools had regained their normal consistance, were one per day, and free from the balantidia coli. Ipecac was continued all this time, at first daily, and then at varying intervals of two days, twice a week, and finally once a week. It seemed to be rather beneficial from the start, but not as quickly as in the ordinary case of amebic dysentery. Practically no other treatment except ipecac was given. Under ipecac the bowel movements gradually became less, decreasing from five to four, then to three,

Digitized by Google

and at length to one in 24 hours. There never were as many movements as in a case of amebic dysentery.

This patient was finally discharged as "cured" on August 30th, and returned to duty.

The study of these cases seems to indicate that severe dysentery, simulating the amebic variety, may be caused by the Balantidium coli. It also shows that ipecac has the effect of destroying the infusoria, Balantidium coli, even as it destroys the amoebae; but the former is not as readily killed by the drug as the latter.

Doubtless many of our cases of so-called amebic dysentery, in the Philippines, in which the amoebae cannot be found, would show the Balantidium coli, if cultures of the stools were made on the Musgrave modified agar-agar. In the fresh specimens the Balantidium coli is often in the encysted stage, when it can be very easily overlooked.

Digitized by Google

OBSERVATION OF EYE, EAR, NOSE, MOUTH AND THROAT IN LEPROSY.

By Major P. C. FIELD, Medical Corps, U. S. Army.

THERE are four advantages in being stationed in the "hottest place on earth" and these four are the clinical advantages of the four endemic diseases, viz: leprosy, smallpox, typhoid and dengue.

There were segregated and removed to the leper colony of the Philippine Islands, from this Sanitary District during the past year, 263 lepers. And if you ask why so many are found in Cebu, you will be told that the District Health Officer is "playing the game" all the time; is always fit and ready for extra innings; as in the old Oriole days he can still out-guess the other fellow and never wavers or loses control, whether it be applause or the cry of "take him out," which reaches his ears. Hence it is explained to you that Cebu has really no more lepers than the other islands of the group, but that more of the anaesthetic class are recognized by the District Health Officer, and with the easily recognized nodular class, make a seemingly larger total. At a recent semi-annual segregation of one hundred and thirty-two lepers, I was given the opportunity to see them in the evening, just prior to shipment to the leper colony, when they had all been collected in an abandoned building in a Cebu suburb. Depending upon the reported anaesthesia of the throat, I expected to tabulate findings in one hundred of these lepers. But irritability of the mucous membranes was augmented by emotional disturbances coincident with the sudden and forcible separation of families or the happy future of no work and plenty of food which appealed to the beggars among them. Consequently I succeeded in recording findings in only forty. The intimate contact necessary warranted the use of rubber gloves, operating gown and gauze face mask for nose and mouth. The lepers examined were known to me only by the numbers given them by the civil government expert and his assistant, who, with Dr. Arlington Pond, the District Health Officer, were making, that same evening, the microscopic

Digitized by Google

examination in support of the clinical diagnosis. These experts offered no more information regarding the probable initial lesion than can be found in authoritative works on the subject. I noted, however, that in doubtful cases, particularly in the early and in the purely anaesthetic type, a scraping from the anterior nares by scalpel was used by preference and with frequent positive results in lepra bacilli. This fact did not fail to stimulate my interest in the nose particularly. I was not influenced by bacteriological findings since I did not receive them until afterward. The cases varied from the pronounced tubercular or nodular type with considerable deformity or the extreme anaesthetic and nearly helpless case, to those so indefinite that laboratory findings were negative and the experts were doubtful.

If we consider the method of infection, we find many theories but none proven. There can be no real doubt that the disease is spread from human being to human being. Sir Jonathan Hutchinson supported transmission by food, especially fish, and particularly dried fish. Linnaeus and Rolander considered chlorops (musca) laprae; Corredor suspected flies; Sabrazes, insects; Joly, sarcoptes scabiei and pediculi, and Sommer, mosquitoes. Goodhue, of the Molokai Leper Settlement, Hawaiian Islands, claims to have demonstrated lepra bacilli in culex pungens and in cimex lectularius. In Japan and Ceylon, the natives claim that the disease begins after the bite of a rat. Last, but surely not the least important, is Sticker's claim that bacilli of leprosy often remain dormant for long periods; that of one hundred and fifty-three cases examined, he found the bacilli in the nasal secretion in one hundred and twenty-eight and that this is a chronic source of danger. He believes the initial lesion is an ulcer above the cartilagenous part of the nasal septum.

Keeping Sticker's theory particularly in mind, the following may be of interest:

The Eye.—The fundus was not examined. In the one hundred and thirty-two lepers seen during the general physical examination by the civil government experts, no active, destructive, lesions of the eyeball were noted. On the other hand one of the most constant and early signs of leprosy is an indefinite fullness of the skin of the lower eyelid, and adjoining cheek, and alae of nose, and the trained observer will next look at the patient's back

Digitized by Google

expecting to find a maculo-anaesthetic spot in corroboration of his suspicions. In the forty cases closely examined by direct and oblique light, the conjunctiva was always chronically inflamed. This condition, however, is not limited to lepers, since Cebu dust is constant and irritating, because all animals, including the human, with the sole exception of carabou, unblushingly expectorate, urinate and defecate on the streets. No lesions of sclera or iris or aqueous were noted and only two cases (5%) had opacities of the cornea undoubtedly due to a former ulcerative keratitis and most likely luetic in origin. In one case the opacity involved both eyes and in the other only one eye. No marked disturbance of vision was admitted, except in above two cases, but no tests for vision were made.

The Anterior Nares.—The condition found was a surprise to me. In thirty-four out of forty (85%) was found an active and destructive ulceration, always much more advanced than involvement of the rest of the body, and in the more advanced nodular cases it had passed to positive atrophy of bone and cartilage and loss of all landmarks. In the latter the replacement of normal tissue with lepromatous tissue had resulted in marked atresia of anterior nares. This ulceration and atrophy was the rule in tubercular and mixed cases while the maculo-anaesthetic type showed no ulceration or atrophy and only a smooth "velvety" and anaemic appearance of the mucous membrane. It was noted that slight and beginning nasal involvement corresponded with the same condition in the rest of the body but always giving the impression of a more advanced infection. If a choice could be made, I should say that the anterior tip of the inferior turbinate gave evidence of more early involvement than the septum, and in a few cases the tip of inferior turbinate was already ulcerated and atrophied when septum was still only much thickened and not yet ulcerated. In only two cases (5%) had ulceration of septum resulted in perforation. I cannot agree with the statement that a leprous nose (anterior nares) looks like a pronounced case of atrophic rhinitis, because lepromatous tissue formation replaces the atrophied turbinates and hence the above mentioned atresia. Any removal of scabs caused profuse bleeding and doubtless distribution of lepra bacilli. No ulcer above car-

Digitized by Google

tilagenous septum was seen in the early cases and the evident later involvement of the middle and superior turbinates would indicate that the sinuses were not, as a rule, affected until later in the disease.

The Posterior Nares.—I was again surprised to find that ***not one*** of the forty had any signs of ulceration or lepromatous deposit in posterior nares. This seemed strange when the anterior nares were so extensively involved. The mucous membrane was always anaemic and when atrophy of turbinates was marked in anterior nares, some atrophy of posterior tips was evident. The appearance of posterior nares was similar to atrophic rhinitis.

The Naso-pharynx.—This was anaemic but otherwise negative for leprosy in all cases.

The Mouth.—While the cutaneous surface of the lips, in common with the lower eyelids and alae of nose, are early involved in nodular leprosy, in only one case (2½%) was seen any lepromatous deposit in the mouth and this was on the upper surface of the tongue.

The Fauces.—The anterior pillars were regularly inflamed at the edges and in contrast to this, the anaemic look of the rest of the anterior pillars was similar to and suggestive of leutic infection. The tonsils were negative in all cases. The posterior pillars were negative, except, in three cases (7½%), when lepra deposits were quite evident but with no ulceration, and in two (5%) of these cases the posterior wall of pharynx was thickened but not ulcerated.

The Larynx.—The most curious change was found in the epiglottis. In only one case (2½%) was ulceration seen and this was so evidently chargeable to tuberculosis and so characteristic of a tubercular ulceration of edge of epiglottis, that it may be ignored. It is important that in this case, laboratory findings were negative for leprosy and nose was negative. In 50% of the cases the epiglottis was greatly thickened, particularly the center; the lateral edges were approximated so that often only a slit existed, and it seemed as if this organ must have lost its chief function of protecting the laryngeal opening. It was so stiff that it was with difficulty raised sufficiently far to obtain a view of the interior of the larynx. It in no way suggested a tubercular epiglottis because of the much greater thickening and puckering and absence of ulceration.

Digitized by Google

The Arytenoids and Vocal Cords.—In six cases it was impossible to obtain a view of the interior of larynx because of extreme involvement of epiglottis or marked emotional disturbance. In the others, both arytenoids were much thickened, pale, and not ulcerated in 38%, the thickening being much greater than is usually seen in tuberculosis. It was surprising how little change in the voice resulted and this seemed due to the fact that the true vocal cords showed slight thickening in only two cases and the false cords were involved in only two cases. No ulceration was seen in the larynx.

Ears.—Fifty-eight per cent had normal ears; two nodular cases showed extensive ulceration of whole external canal of both ears and one nodular case showed one ear with inner half of canal and apparently middle ear occupied by new growth which was not ulcerated. Hence 7½% had ear involvement characteristic of lepromatous tissue. Fourteen cases showed positive evidence of prior middle ear disease; seven ears showed otitis media, chronic, purulent, residual, and twelve ears showed otitis media, chronic, catarrhal and not directly due to leprosy, but rather to obstruction and catarrhal condition of nose and throat.

Returning to the bacteriological findings, 12½% showed lepra bacilli, in the one specimen prepared in each case.

Considering that 85% had characteristic involvement of anterior nares, and this was evidently more advanced than elsewhere in the body, are we warranted in stating any conclusions?

Shaffer reports that he collected lepra bacilli on clean slides placed on tables and floors near lepers who were reading aloud, while others report that bacilli have never been found in dust, air, earth, water or food.

The civil government experts informed me that even in the unmixed anaesthetic type of case, where no manifest nasal ulceration or specific deposit is the rule, having failed to demonstrate bacilli from skin lesions, they frequently obtain lepra bacilli from scrapings (excoriation of mucous membrane) taken from anterior nares.

From the above facts we might assume that the nasal secretions furnish and transmit the bacilli by sneezing, coughing, and other forcible expiration.

We may be pardoned if we admit a strong inclination toward holding the anterior nares and particularly the anterior tip of the inferior turbinate as the place of the initial lesion.

Digitized by Google

LEUCOPENIA.

An early diagnostic symptom in typhoid fever.

By Captain CLARENCE L. COLE, Medical Corps, U. S. Army.

SINCE July, 1910, ten cases of typhoid fever have been treated in the Post Hospital, Fort Logan, Colorado. During the treatment of these cases we have been unable to make as early diagnosis as we would wish because of the atypical beginning of some of them, absolute impossibility to trace the source of infection in others, and failure to secure blood cultures or positive Widal reactions early in some, and in one very obscure case no positive Widal was secured throughout the entire course of the disease.

However, because of the fact that in every case in which blood counts were made early in the disease, before a positive Widal reaction had been obtained, a constant condition of the leucocytes was noted, i. e., a leucocyte count of 4,000 or 5,000 with a differential count, showing a marked increase of mononuclear leucocytes —30 to 50% large lymphocytes, 4 to 16% small lymphocytes, 7 to 10% transitionals, and a decrease of the polynuclear cells—48 to 52% (maximum and minimum of numerous counts).

While most of the text books mention this blood condition as a symptoms of typhoid fever, its importance as an early diagnostic symptom had not occurred to us until the wife of an officer of the garrison became suddenly ill. The patient had always been known to be very careful in the use of sanitary drinking cups, and exercised great care in always drinking from pure water supplies. There was no typhoid fever or fever of any kind among her associates. The patient was found to have a temperature for the first few days of 104 and 105 degrees F., morning and evening, with severe headache and an enlarged spleen. The blood count showed a leucopenia—there being 4,000+white cells, with a decrease of polymorphonuclear cells—average number of counts 48%, with marked increase of mononuclear elements—large lymphocytes 35%, transitionals 7%, and small lymphocytes 10%. After repeated blood examinations were made, and the same condition

Digitized by Google

found, typhoid fever was diagnosed. Later rose spots appeared, and a positive Widal reaction was secured. Since this we have paid a great deal of attention to this phenomenon, and found it constant in all later cases.

Subsequently an article appeared in the *American Journal of Medical Sciences,* August, 1911, by J. F. Hultgen, M. D., calling attention to the importance of this blood condition as an early diagnostic sign in typhoid fever, which can be obtained before blood cultures or positive Widal reactions.

If the lymphoid, lymphatic, and blood-making organs are the channels of entrance of the typhoid bacilli into the body, and constant changes in these structures follow such entrance, it seems but reasonable to infer that in these structures we should seek the earliest evidence of the disease. We realize that the picture may be changed in complicated cases, developing coincidentally or following some other systematic disturbance, which may, of itself, alter the natural relation of the elements of the blood.

The cases were treated, under the direction of Major Shook, by Captain Juenemann and the writer, and this report is submitted on the suggestion of Major Shook because it is thought that, in view of the conditions which now confront us, the Widal reaction is of no diagnostic value in Army practice. This fact has already been noted by Lieutenant Colonel J. R. Kean, Medical Corps, as follows: "The Widal reaction has no diagnostic value in immunized persons."*

Major F. F. Russell, Medical Corps, states that "The Widal is positive in high dilution of the serum—in many cases being present in a dilution of one in 5,000—10,000, or even one in 20,000. Only rarely does it fail to rise above one in 500 or 600."†

In consideration of these facts it seems possible that the value of the blood count supplants the Widal reaction as an equally important yet earlier diagnostic measure for the Army for the reason that apparently the leucopenia and increase of mononuclear elements with decrease of polymorphonuclear cells does not follow artificial immunization by means of the anti-typhoid prophylactic.

---

*Journal of American Medical Association, August 26, 1911, Vol. LVII, pp. 713, 714, and 744.

†New York State Journal of Medicine, December, 1910.

Attention is also invited to the Johns Hopkins Hospital Bulletin, Vol. XXI, No. 220, March, 1910, for another report by Major F. F. Russell, Medical Corps, U. S. Army.

Digitized by Google

Major Russell reports, in the article above quoted: "The leucocyte count is temporarily but regularly raised after each dose of vaccine. The rise is often 15,000, but it soon begins to decline and reaches normal in about ten days."

In a few cases, following immunization against typhoid fever, in which we have made blood counts we have found a leucocytosis and never a leucopenia, mononeucleosis or decrease in the polynuclears. However, we have not had an opportunity to make *a series* of blood counts in cases after the administration of the prophylactic.

The blood counts, report of Widal reactions, blood cultures, and stool and urine examinations have been omitted from this report for the sake of brevity, and attention is invited to the excellent article by J. F. Hultgen, M. D. It is believed that the diagnostic point, above referred to, is of great importance for the following reasons:

Tests can be made daily, if necessary, as readily in the field as in the post hospital.

The blood findings appear to be constant, and occur before bacillemia or the Widal reaction can be obtained.

From the above quoted reports of the authorities and limited number of tests made on soldiers at this post it seems that this typical blood picture is never present following the administration of the typhoid prophylactic, and it is reasonable to suppose that the leucopenia with its associated leucocyte count will be present in typhoid fever, developing subsequently to inoculation. If such should prove to be the case, we have a most valuable diagnostic sign in all cases of suspected typhoid fever.

Digitized by Google

A CASE OF STRANGULATED INGUINAL HERNIA.

By Major THOMAS H. BRATTON, Medical Corps, U. S. Army.

PRIVATE S., a recruit, about May 4th, 1911, while at Fort Slocum, had a small right inguinal hernia the size of the little finger. At times it protruded through the external ring and entered the scrotum; but as it gave no trouble he paid no attention to it.

On July 20th he was out at bareback drill but experienced no pain in the hernia. When grooming his horse, after returning from drill, and on rising from a stooping position he felt pain in the inguinal region. Examining himself he found a large swelling in his scrotum.

He came to the hospital about 11 o'clock and one of my assistants, 1st Lieut. James R. Kennedy, Medical Reserve Corps, attempted taxis; but not succeeding, he placed Private S. in bed with an ice cap over the hernia hoping that the cold would reduce the size of the hernia and allow its return. This plan not succeeding, I was notified of the condition about 5 o'clock p. m. I found an oblong, pear-shaped tumor extending through the canal and into the scrotum, the larger part in the scrotum. There was no impulse on coughing and no gurgling. The tumor seemed quite fixed and gave the impression of a solid tumor of the cord. The history of the case, however, made the diagnosis quite clear. The man's general condition was very good, no fever, no nausea and only a little pain.

I decided to do a Bassini operation immediately for the relief of the strangulation and for radical cure. With the assistance of 1st Lieut. William Archer, Medical Reserve Corps, the patient was made ready for operation. Tincture of iodine was used for skin sterilization. The usual incision was made and the sack reached and isolated without difficulty. On opening the sack, a large piece of omentum and a large loop of highly congested, purple-colored gut was disclosed. A very tight constriction was found at the internal ring, the sac itself being the constricting tissue. An incision was made in the sac through and beyond the constriction which allowed the return of the omentum. The

Digitized by Google

gut quickly resumed its normal color after the constriction was cut and it also was returned to the abdominal cavity. The sac was ligated at the internal ring and cut off as usual. As the hernia was of the congenital type a small pouch of the distal or scrotal portion of the sac was left to form a tunica for the testicle. The wound was closed as usual, using kangaroo tendon prepared by the Forward method for the muscles and the aponeurosis, and silkworm gut for the skin.

The patient had an uneventful recovery, the temperature never exceeding 99.8 F. and the pulse never exceeding 78.

* * * * * *

REMARKS.

Ever since my student days I have been on my guard for a case of strangulated hernia, for I remember the vivid impression produced on my mind by my professor of surgery as to the necessity of immediate action in such cases. The picture that I carried in my mind, however, was quite different from what I found in this case. I was not prepared to find such a hard, fixed tumor; and without the history, I feel that I would have gone astray on the diagnosis.

It would seem that the use of tincture of iodine for surface sterilization, especially for the skin and hands, will add greatly to the surgical possibilities of the army surgeon in the field. The instruments, a couple of sheets, a few towels and some gauze can be boiled; for a boiler can always be fouud in any camp. The hands and the area of operation can be disinfected by tincture of iodine. And with such a procedure, I believe that any case requiring immediate operation should be relieved in the field hospital rather than wait till the patient can be transferred to some better appointed hospital; for delay may mean the death of the patient.

Digitized by Google

REPRINTS AND TRANSLATIONS

REPORT ON THE CORONATION DURBAR CONTINGENT OF THE ST. JOHN AMBULANCE BRIGADE.

THE St. John Ambulance Brigade was introduced into India in 1904, but up till 1909 was unknown outside of the Island of Bombay. In Bombay it has moreover hitherto only flourished amongst the Parsi community and no European units have yet been formed.

Since 1909 steady progress has been made all over India and efficient and well equipped units now exist at Peshawar, Calcutta, Lucknow and elsewhere.

These units have been doing useful work but have hitherto been only employed on occasions of local interest.

It was therefore felt that, as on all great occasions in England the Brigade is so much in evidence, the great and historic Coronation Durbar should not pass without the presence of a contingent of the Brigade.

After much preliminary correspondence, Major Blackham, who has served continuously in the Brigade since 1905 and raised a considerable number of units in England, for which his services were specially mentioned by the Deputy Commissioner of the Southern and Western Districts in his report for 1907, proceeded to Delhi, and thanks to the influence of the Honorable Sir T. R. Wynne, K. C. S. I., and Mr. V. Gabriel, C. V. O., C. S. I., was able to obtain the sanction of His Honor the President and Members of the Durbar Committee, including Colonel Bamber, C. V. O., I. M. S., Administrative Medical Officer, to the employment of the St. John men with the civil ambulances.

The government agreed to supply all equipment at ambulance stations and thanks to General Cox, A. Q. M. G., and Major James, D. A. Q. M., a good site in a most central position was provided for the St. John Camp.

Colonel Palin, Assistant Director of Supplies, very kindly per-

Digitized by Google

mitted Major Blackham to draw soldier's rations on payment for the contingent. These rations were of splendid quality and were supplied at very cheap rates. Were it not for this kind personal favor from Colonel Palin the Commissariat would have been a difficult and most expensive item as food-stuffs were at famine prices.

Tents were obtained, as for soldiers, from the Ordnance Park, through the kind offices of the Secretary, Durbar Committee.

Major Blackham was recognized by the Durbar authorities as Military Commandant of the Camp and was responsible to them, as a military officer, for its good order and discipline.

He appointed Captain Norman White, Superintendent of the Lucknow Division, as Adjutant; G. P. Strudwick, Honorary Secretary of the Peshawar Division, Camp Quartermaster; and Pte. Richardson, also of Peshawar Division, Camp Provost Marshal.

The Camp opened on December 4th and the interest taken in it is evinced by the following long telegram which appeared in the *Pioneer* on December 11th:

"THE ST. JOHN AMBULANCE.

"Ambulance work has of recent years been brought very prominently before the public in India and there are now very few large centers of population or educated communities where the great humanitarian work of the Order of St. John is not known and appreciated. It is, however, only during the last year or two that any attempts have been made to organize persons trained in first aid and elementary nursing into disciplined bodies which could be employed (1) in time of war; (2) in national or local emergencies; and (3), last, but by no means least, on occasions when great crowds assemble. The organization which provides these trained bodies is known as the St. John Ambulance Brigade. The Coronation Durbar offered a unique and historical occasion for the employment of the recently organized units and, thanks to Sir T. R. Wynne, Chairman of the Executive Committee of the Indian Branch of the St. John Ambulance Association, and other officials, it was possible to lay before the Durbar Commit-

Digitized by Google

tee a workable scheme for the employment of a large contingent of the Brigade at the Durbar festivities. The scheme met with the cordial approval of Sir John Hewett, General Cox and Colonel Bamber, and the men have now been hard at work for several days with the civil ambulance. At the State Entry, they furnished a large number of parties on the route through the city, especially one at the town hall.

"The contingent of the Brigade is of the following strength: Ambulance establishment: officers, 3; European workers, 24; Indians, 49; followers, 8; total, 84. Transport establishment: Ambulance carts, 15; transport carts, 3; draught ponies, 36; riding ponies, 30; followers, 8. The transport with drivers is commanded by Rai Bahadur Lieutenant Colonel Dhanpat Rai, Jaipur. The transport corps has been very kindly placed at the disposal of the contingent by His Highness the Maharaja of Jaipur. All the men of the transport corps employed are fully trained in ambulance duties and hold the St. John Ambulance certificate. The contingent is encamped on a convenient site immediately northwest of the State Railways camp and is available night or day for any emergency in the civil portion of the Durbar area. As the men of the Contingent have riding ponies and its ambulance carts can move rapidly, the Contingent can be on duty in a very short time in any position of the area, however distant, and is a valuable asset in the case of any great fire or any emergency.

"The Contingent has already been inspected by Colonel Bamber, I. M. S., Administrative Medical Officer, Coronation Durbar, Sir T. R. Wynne and Lieutenant Colonel Pedley, the Senior Volunteer Medical Officer to the Durbar troops. All these officers have expressed themselves highly pleased with the camp arrangements and the general turnouts of the Brigade. This large assembly of trained workers at the Durbar is a practical demonstration of what can be done in the way of a voluntary aid organization in the country and should prove a great incentive to the movement throughout the Empire.

"This afternoon the men of the Brigade were very much in evidence on the polo ground. When the accident happened to Moti Lal they were quickly on the scene with a wheeled ambulance in which they conveyed the risaldar to his own camp. The

Digitized by Google

King-Emperor will appreciate this proof of the usefulness of the Brigade as he has been for many years President of the St. John Ambulance Association and has presented two handsome shields for competition amongst ambulance teams in India."

The Contingent was on duty every day throughout the Durbar period and did excellent work.

The following tribute is paid to its utility by the Durbar correspondent of the *Pioneer,* the leading Indian newspaper:

"THE AMBULANCE CONTINGENT AT THE DURBAR.

"As this week has been so full of State events and the time of all great officials has been fully occupied, a review and Ambulance display was given by the St. John Ambulance Brigade Coronation Durbar Contingent on their parade ground on Saturday afternoon at 3 o'clock.

"The Contingent was inspected by the Honorable Surgeon General Sir Charles Lukis, K. C. S. I., Director General of the Indian Medical Service; the Honorable Mr. Sharp, C. I. E., Home Secretary; the Honorable Sir Arthur Ker, C. I. E., M. V. O., and Mr. V. Gabriel, C. V. O., C. S. I., Secretary of the Durbar Committee. The parade was attended by a large number of ladies and gentlemen interested in ambulance work.

"The display consisted of a demonstration of the treatment of injuries and emergencies, various methods of transporting the sick and wounded, and a demonstration of appliances and apparatus used in first aid.

"The members of the Contingent showed how neatly and deftly a broken limb can be treated with the simplest appliances such as a puggeree and a couple of sticks, how bleeding can be promptly and effectively controlled with materials always at hand, the treatment of various forms of unconsciousness and the methods of rendering first aid to the various other varieties of accident too numerous to mention.

"The inspecting officers expressed the highest approval of the first aid work and some surprise at the remarkable rapidity and skill with which the members of the Contingent could load up the ambulance wagons placed at their disposal by His Highness the Maharaja of Jaipur. They were, moreover, much interested in

Digitized by Google

the large numbers of contrivances for the sick and wounded devised by Rai Bahadur Dhanpat Rai, C. I. E., M. V. O. The presence of this Contingent at the Durbar marks an epoch in the progress of ambulance work in India.

"Besides their prompt attention at the serious injury at the polo semi-final which has already been referred to in your columns, the Contingent has treated the accident to Captain Jackson, 27th Cavalry, at the point-to-point races yesterday, two compound fractures of the legs, several simple fractures of various bones, and many hundred minor injuries.

"A detachment has been constantly on duty at Kingsway Station and has been most useful as it has rendered aid to many sufferers. The Contingent was present in force at the Durbar itself and amongst the individuals treated were two Indian Princes, the Chief Clerk of one of the Government offices, and many European ladies and gentlemen.

"The men have been on duty throughout the Durbar period and the smartness of their uniforms and the general turnout of themselves and their ambulance transport have been very favorably commented on by the highest officials.

"As a mark of the approval by the Military authorities the Contingent was permitted to be on duty at the Review and each member was granted a pass to the grandstand signed by the Assistant Quartermaster General of the Durbar."

The following further note appeared in the *Pioneer* of 18th December, 1911:

"The St. John Ambulance men at Delhi were again very much to the fore on Friday at the point-to-point races when Captain Jackson, of the 27th Cavalry, fell at the first hurdle. A stretcher squad from the St. John Ambulance post at the west of the grandstand was on the scene without a moment's delay and carried the sufferer to the civil ambulance station posted by Colonel Bamber, I. M. S., behind the grandstand. The Contingent has been doing yeoman service, in the cause of humanity throughout the Durbar period and this second striking instance of the utility of the St. John Ambulance men, which has occurred in the immediate presence of Their Imperial Majesties, must be specially gratifying to His Honor Sir John Hewett, Colonel Bamber and the other members of the Durbar Committee who are responsible

Digitized by Google

for their employment with the civil ambulances on this historic occasion."

On the whole the Contingent was a great and unqualified success and, in the words of the *Pioneer,* shows what can be done in the way of voluntary aid organization in India.

It is gratifying to relate that during the fortnight's duration of the Camp no crime of any sort and no cases of discontent occurred amongst the very mixed body of which it was composed.

The Brigade merits special encouragement in India as the Divisions which have been formed in Hindustan are the only units existing in the tropics, as with the exception of India all the Overseas Units of the Brigade are situated in white men's countries, viz., South Africa and Australasia.

In India the Brigade has far greater opportunities for development than anywhere else as there is a vast volunteer force with no medical organization behind it. Even places like Ceylon have a volunteer medical corps, but India has none.

It might, therefore, be well to organize the Brigade in India so that it will fill this gap in Indian Medical military organization and at the same time be available for its civil duties.

There can be no sort of doubt that the Coronation Durbar St. John Ambulance Camp was quite unique in every way as never before in any part of the King's Dominions have ambulance workers been in camp in peace time on continuous duty for so long a period, never before has a St. John Ambulance Camp been supplied with practically unlimited transport by a great Indian Prince and certainly never before have Christians, Parsees, Hindus, Mohammedans, and Burmese been gathered together by the common bond of humanitarian union under the White Badge of St. John.

Digitized by Google

RUSSIAN FIELD WAR SANITARY TRAIN.

AT the big maneuvers at Kiev last fall was inspected and tried the new railroad system for the transportation of the wounded, the Russian name for the same being the Field War Sanitary Train.

As a result of the Russo-Japanese War, the medical department here has been experimenting to produce a light but complete equipment, which could be packed in a small space, and yet suitable to hurriedly equip a number of freight cars, that they might serve as temporary ambulances for the transport of the wounded to the first base hospital.

The train that was thus equipped last fall was, I understand, quite satisfactory and has been adopted as the standard. As to the details of the equipment I have received no exact information; but as our cars are so much larger, and the traction power of the engines many times greater, such details are of little importance. In general terms the train was of 10 cars, with collapsible double decked cots, to accommodate 500 men; to overcome the difficulty of any lack of communication between cars, the train was equipped with a complete telephone system, and in addition a supplementary system of signals was provided, so that an attendant in any car could summon a doctor in case of need.

This train fully equipped, including doctors and staff, was run from Moscow to Kiev and there dismounted in 2½ hours. It was again fully equipped and 500 supposedly wounded placed aboard, in a little longer time, and the train thus loaded returned to Moscow.

The Russian idea is, that in all probability the scenes of battle will be near a railroad, freight cars can always be obtained where others might not be available, and that therefore a compact and light equipment, for transforming the freight cars into an ambulance train, should always be on hand. By the use of such a quickly improvised War Sanitary Train, the wounded can be sent almost immediately to the nearest base hospital. For the subsequent transportation to the big hospitals in the cities, regular sleepers are used; such trains have, of course, no connection with this for use on or near the field of battle.

Digitized by Google

CURRENT LITERATURE

Titles marked with an asterisk (*) are abstracted below.

BELGIUM.

Archives Médicales Belges.

April, 1912.

1 The Principal Signs of Nervous Maladies. M. Houze.
2 The Employment of High-Frequency Currents in Gynecology. M. Waffelaert.

CHARLES F. CRAIG.

FRANCE.

Archives de Médecine et de Pharmacie Militaires.

April, 1912.

3 Study of the Association of Scarlet Fever and Smallpox. Talon.
4 On the Radical Cure of Varicocele. Lapasset.
5 Drinking Water of Casablanca and Chaouia. Gautier and Moreau.
6 The Sanitary Service at the Battle of El-Mennaba. Coudray.
7 A Study of the Native Dispensaries in Algiers and Morocco. Folly.

H. J. NICHOLS.

Archives de Médecine et Pharmacie Navales.

April, 1912.

8 Comparative Study of Gravimetric and Titrimetric in Analytic Chemistry. M. P. Gueguen.
9 Experience in the Sterilization of Water by the Ultra-Violet Rays. M. le Dr. Violle.
10 Preparation of the Sanitary Service for Battle. M. le Dr. Gloaguen.
11 Malaria at Ajaccio. M. le Dr. Brunet.

JOHN C. WISE.

Digitized by Google

Bulletin de l'Académie de Médecine.

February 27th, 1912.

12 *Morbid Lack of Thirst. P. Fabre.
13 Biology of the Ascaris. Perroncito.

12. **Lack of Thirst.**—Fabre has collected 23 unpublished cases of a morbid lack of thirst which is apparently a normal condition in some individuals. He instances cases in which no fluids were taken for days and even weeks, and yet these patients did not suffer in any way from the apparent lack of fluids. The author concludes that most people drink far more than is actually required for the needs of the body, and that at meals, especially, too much fluid is taken.

March 5th, 1912.

14 Internal Hemorrhage from Rupture of Graafian Follicle. D. J. Cranwell.

March 12th, 1912.

15 *Treatment of Undescended Testicle. C. Walther and C. Monod.

15. **Treatment of Undescended Testicle**—Walther's technic consists in mobilizing the spermatic cord as high up as is possible, after which the testicle is drawn down and slipped into the other half of the scrotum through a slit made in the septum. This slit is then sutured on each side of the spermatic cord, the testicle thus being firmly held in its new bed by the elasticity of the septum. The cord is left free and the traction from the testicle below gradually stretches it so that no inconvenience is felt from this method of dealing with the cord. Walther has operated upon something over thirty cases with the most excellent results.

March 19th, 1912.

16 Lice as a Factor in Phlyctenular Conjunctivitis. De Font-Reaulx and R. Blanchard.
17 Treatment of Syphilis in Pregnant Women. M. Pamard.

Digitized by Google

March 26th, 1912.

18 Pulmonary Decortication. M. Delorme.
19 Virulence and Contagiousness of Tuberculosis. M. A. Poncet and M. M. Piery.

April 2nd, 1912.

20 Report of Committees.

April 16th, 1912.

21 Curable Forms of Arterial Hypertension. Ch. Fiessinger.

CHARLES F. CRAIG.

GERMANY.

Deutsche Militärärztliche Zeitschrift.

April 5, 1912.

22 Bacteriological Investigation of Water with the Aid of the Army Berkfeld Filter. Erich Hesse.
23 The Present Status of Hormonology. Kohle.

April 20, 1912.

24 On a Case of Cure of a Blank Cartridge Wound of the Abdomen with Perforation of the Stomach and Small Intestine. Petzsche.
25 The Question of Treating Severe Peritonitis by Making an Intestinal Fistula. Bommes.
26 Results and Advances in the Field of Physical Therapy. Scholz.
27 The New Regulations of the Swiss Army Medical Service. Schmidt.

H. J. NICHOLS.

GREAT BRITAIN.

Journal of the Royal Army Medical Corps.

April, 1912.

28 Experiments to Ascertain if Antelope May Act as a Reservoir of the Virus of Sleeping Sickness (Trypanosoma Gambiense). Col. Sir David Bruce, C. B., F. R. S., and Capt. A. E. Hamerton, D. S. O., and H. R. Bateman, R. A. M. C.

Digitized by Google

29 The Treatment of Syphilis at the Royal Infirmary, Dublin. by Intravenous Injections of Salvarsan. Capt. A. T. Frost, R. A. M. C.
30 Quinine Injection and Tetanus: A Criticism. Major F. J. Palmer, R. A. M. C.
31 Practical Hints on Marching and Health on Active Service. G. Fahey (late 88th Connaught Rangers).
32 *Quinine as a Malarial Prophylactic and Curative. Major N. Fanchnie, R. A. M. C.
33 *Field Cooking. Lieut. Col. H. E. R. James, C. B., R. A. M. C. (Ret. Pay).

32. **Quinine as a Malarial Prophylactic and Curative.**—It is the opinion of the author that most medical officers in India must be very much disappointed with the result of the use of quinine as a "malarial prophylactic." In many of the stations with a very high incidence of malarial fevers, quinine has been used for several years, yet the disease still continues with unabated force, especially in bad years such as 1908. The success of this measure has been more marked in Italy than in India. The author thinks that the reason for the success in Italy as compared with that in India is in their method of administering the drug. In India it is difficult to get the troops to parade every day, so generally quinine is given twice a week; also the insoluble sulphate is the salt usually administered, while in Italy soluble salts like the bisulphate are given in doses of 6½ to 10 gr. every day according to the prevalence of malaria in the locality. The author says that in conjunction with this subject the long continued use of quinine as curative of malaria is worth consideration. There is no doubt that quinine is a specific for malaria while an attack is in progress, but whether it should be continued for long periods after the fever is over in another question. Ross recommends a "rigorous quinine treatment for four months," but the Italians, on the other hand, insist that quinine does not have much effect on relapses; Caccini, especially, who has studied the question very carefully, holds this belief.

33. **Field Cooking.**—The author says that this is a subject of special importance to the medical officer since much of the disease of armies in the field is predisposed to by faulty food and monotony of diet, and, moreover, waste of good material is certainly caused by the inability to make it appetizing. An important part

Digitized by Google

of the care of the sick and wounded is the cooking of food suited to their needs. Men are likely to be separated from the main body in groups or small detachments, and in this case the regimental cooks are inaccessible, and the men must either subsist upon previously cooked (hence cold) rations, raw rations, or the emergency ration; or else they must be prepared to cook their raw rations in their mess tins. It is said by the school which deprecates formulation of ideas, and holds that everything will come right after a little practice in campaign, that the soldier, in the light of experience gained by failure, will soon learn to cook for himself, and that he needs no instruction beforehand. But, in the meantime, he suffers from indigestion and starvation, and if a little instruction and practice, even at the expense of the lustre of the mess-tin, were afforded in time of peace, the knowledge gained would be of practical utility to the man, whether as a soldier or in after life as a civilian, and would make him more independent than he is at present, and hence the State would benefit.

In the French Army, and doubtless in some others, the art of individual cooking is given a place of some importance, and a most excellent book has been published in French called, "Livre de Cuisine Militaire aux Manoeuvres et en Campagne," published as a military handbook by Henri Charles-Lavauzelle, St-Germain, Paris.

Very complete directions for field cooking, using the rations and apparatus available on service, and much necessary information bearing upon this subject, together with recipes for thirty-one dishes, are given in this manual, and most of these dishes would be as palatable to the British as to the French soldier. The Frenchman is proverbially good at cookery, and this manual will repay a careful study.

ALBERT G. LOVE.

The Indian Medical Gazette.

March, 1912.

34 Convict Marriages in the Andamans, Major J. M. Woolley, M. D. (Cantab.), I. M. S.

Digitized by Google

35 A Case of Acute Polioencephalitis Superior. Capt. P. Heffernan, B. A., M. B., I. M. S.
36 *Gleanings from the Calcutta Post Mortem Records. Leonard Rogers, M. D., F. R. C. P., I. M. S.
37 A Note on Some Cases of Probable Lathyrism. Major J. W. D. Magaw, I. M. S.
38 Treatment of Trachomatous Conditions by Sub-conjunctival Injections of Cyanide of Mercury. Capt. F. F. Strother Smith, I. M. S.
39 Note on Complement Deviation in the Sera of Vaccinated Calves. Capt. C. L. Dunn, I. M. S.
40 Kala-Azar and the Bed Bug.

36. **Gleanings from the Calcutta Post Mortem Records.**—Of scarcely less importance than pulmonary tuberculosis as a cause of death in Calcutta are the remaining inflammatory diseases of the lung, of which pneumonia with its complications is by far the commonest and most fatal. The fact that they cause almost as many deaths as tubercular diseases, while the two together are responsible for nearly one-third of the total deaths, is a remarkable fact in such a hot country as Bengal, where it might be thought that there would be less stress on the lungs than in cold climates.

A. G. Love.

Digitized by Google

REVIEWS

THE SURGICAL AND MEDICAL HISTORY OF THE NAVAL WAR BETWEEN JAPAN AND RUSSIA DURING 1904-1905. Bureau of Medical Affairs, Navy Department. Tokyo: Printed by Toyo Printing Co., Ltd., 1911.

This is a most exhaustive work on the naval side of the recent war in the Far East. It is understood that a similar report will be published by the army. If the latter is as complete as the present volume, at last a report will appear which compares favorably with our own Medical and Surgical History of the Civil War, which now stands practically alone in its own field.

The present volume does not lend itself readily to abstracting but should be read by every medical officer of both our land and sea forces.

The Japanese Government has done a great service in having it translated into English and it is hoped that similar action will be taken in reference to the report of the Army medical department when it finally appears.

DISEASES OF THE GENITO-URINARY ORGANS AND THE KIDNEYS. By Robert H. Greene, M. D., Professor of Genito-Urinary Surgery at the Fordham University, New York; and Harlow Brooks, M. D., Assistant Professor of Clinical Medicine, University and Bellevue Medical College. Third Revised Edition. Octavo of 639 pages, 339 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, $5.00 net; Half Morocco, $6.50 net.

The conjoint product of a surgeon and a physician it is intended that in this book equal attention shall be given to the medical and surgical aspects of diseases of the genito-urinary organs and the kidneys. Addressed to the general practitioner and the surgeon it is evident that the book has found a place for itself as it now appears in its third edition within five years.

The work is an exhaustive one though as announced in the preface the purpose of the authors has been to discuss the more important disease conditions of the uro-genital tract from the

Digitized by Google

standpoint of the general practitioner and surgeon. So far as possible, the authors have confined themselves to methods that they have found most useful and practical and which they believe may be successfully employed in the hands of any well-equipped practitioner, familiar with modern medical and surgical technic.

It will be found that attention has been given to anatomy, methods of examination, etc., as well as to disease conditions. More space has been allotted to the urinary organs proper and relatively less to purely sexual disorders.

TUMORS OF THE JAWS. By Charles L. Scudder, M. D., Surgeon to the Massachusetts General Hospital. Octavo of 391 pages, with 353 illustrations, 6 in colors. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, $6.00 net; Half Morocco, $7.50 net.

This is a very valuable work. As stated by the author, new growths of the jaw are uncommon; no one physician meets with many such cases, and yet his responsibility is very great for treatment must be prompt and radical in malignant tumors, while on the other hand, mutilating operations must be avoided for benign growths.

The work is clearly written and splendidly illustrated. The latter is, of course, a matter of great importance in a book of this character which aims to enable the student to make diagnoses largely from inspection alone in many instances.

This book should be found in the library of every practitioner.

PELLAGRA. By George M. Niles, M. D., Professor of Gastro-enterology and Therapeutics in the Atlanta School of Medicine, Atlanta, Georgia. Octavo of 253 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, $3.00 net.

This work represents a careful study of the subject of which it treats. While the author has succeeded in giving all sides of the vexed questions regarding pellagra, he has also forcibly announced his candid opinion and firm convictions. It is quite evident that he believes in Lombroso's theory; "In pellagra, then, we are dealing with an intoxication produced by poisons developed in spoiled corn through the action of certain micro-organisms in themselves harmless to man." This being the case it naturally

Digitized by Google

follows that means of prevention are based on methods to prevent injury of corn, especially in storage.

The "last word" has not yet been said on pellagra, but the present book may be heartily commended as one which represents the present stage of our knowledge of this important disease.

"TIN SOLDIERS." The Organized Militia and What It Really Is. By Walter Merriam Pratt, author of "The Burning of Chelsea," "The Maritime Provinces as seen from an Automobile," "Through Europe on One Hundred Dollars," Etc. With foreword by Captain George E. Thorne, 24th Infantry, U. S. A., Aide-de-camp, Governor's Island, N. Y., Officer in Charge of Militia Affairs of the Dept. of the Eastern Division. Octavo of 185 pages, illustrated. Boston: Richard G. Badger, The Gorham Press. Price, $1.50 net, or $1.62 postpaid.

This book represents an attempt on the part of the author who has had considerable practical experience with the Organized Militia to impart to the general public a better knowledge of the importance of our so-called citizen soldiers. The book is partly made up of articles which appeared in the *New England Magazine* of Boston, after Lieutenant Pratt's return from a tour of duty at the recent maneuver camp in Texas and was, in fact, written on account of the interest shown in these articles.

The catchy title of the book is hardly worthy of its contents. Though for popular reading, only a small percentage of the American people now regard the officers and soldiers of the Organized Militia as "tin soldiers," and it is certain that this small percentage is so far behind times that it can hardly be regarded as likely to profit from a serious book of the character of the one under discussion.

The author has evidently been a close observer and has described in an interesting and generally accurate manner the organization, purpose and service of the Organized Militia. Unfortunately, on account of the lack of the spectacular in the work of the medical department of our land forces it is perhaps less well known to the public than any other branch of our service. Nor does the present author make much reference to it, though he does mention with commendation the excellent sanitation of the maneuver camp in Texas. One error into which he

Digitized by Google

has fallen must be mentioned: referring to the medical department, he state that no soldier in the world is better protected than ours. While it is unquestionably true that great improvements in this respect have been made of recent years, and that individually our medical department officers and men are not excelled in any army we must not forget that they do not approach in numbers those of most great nations. As a matter of fact, we were hardly able to supply the Texas maneuver camp with enough trained officers and men, and even if one other division had been mobilized sanitary personnel would not have been available for it. What then are the prospects for war?

The illustrations are excellent and well chosen and serve to enhance the value of the book.

Digitized by Google

EDITORIAL

THE Ninth International Red Cross Conference is now a thing of the past. The sessions of the Conference were held in the Pan-American Union Building, Washington, D. C., from May 7 to 17, 1912; and the exhibition in connection therewith at the same time in a temporary building erected for this special purpose. The latter was diagonally across the street from the Pan-American Union, and this enabled delegates to visit it freely, an opportunity of which they took frequent advantage. On practically the same site a field hospital was located as well as a Red Cross Field Corps Camp. Moreover, one of the first-aid cars of the American Red Cross had been brought to the immediate vicinity, and a Red Cross Relief Station was located in rear of the exhibition building.

The Conference as a whole was an unqualified success; the weather was extremely unpropitious, however, which militated seriously against the field hospital and the Red Cross field corps, which, on account of the continuous rain and the very soft ground, were not able to give the daily exhibitions which had been planned. Fortunately, the one day which had been set for the first aid competition proved to be the only one on which it could have been held. Its entire program was successfully carried through before the almost ceaseless rain began to deluge every thing.

As judged by the Washington Conference papers and discussions at these conferences take a very wide range, including reports, questions of international law, organization, administration, hygiene, surgical measures, etc. Naturally these questions varied in interest for medical officers and the attendance also varied greatly. Changes in the program also made it impossible to know in advance just what papers would be presented at a particular time and this tended to prevent many medical officers from being present. It is understood, however, that all the important papers will appear both in French and English, so they will be available to anyone specially interested.

Digitized by Google

The exhibition consisted of three parts, viz: a prize competition for the Empress Marie Feodorovna prizes; an exhibit of the work of Red Cross societies; and one, of articles having to do with the amelioration of the sufferings in sick and wounded in war other than those which fell under the subjects of the Empress Marie Feodorovna prize competition of the year. The Army, in addition to the field hospital, made a fine display of its field equipment in the exhibition building, where also our Navy was found with a perfect battleship operating room and a booth in which were shown many photographs and naval appliances as well as samples of the articles which the Navy would call upon the Red Cross to furnish in the event of war.

So far as the Red Cross societies were concerned, Germany, Japan, and our own association of course, made specially extensive exhibits. A number of other countries participated with great credit in this exhibition, however.

Perhaps the most interesting feature of the exhibition, as a whole, was that devoted to the Empress Marie Feodorovna Prize Competition. In this were seen many exhibits by our own medical officers. Two prizes were carried off by them and a number of others received honorable mention. On viewing this competitive exhibition one could not but be struck with the fact that the equipment of the medical departments of both our Army and Navy is of a very high order of excellence. In certain respects the articles exhibited may have suggested modifications in our equipment but at the most these were very slight and relatively unimportant. It was noted that no prizes were awarded for the solutions of the Army and Navy organization problems. This suggests an interesting question: are not the solutions of such problems of vastly more importance than new litters or other equipment? A litter is a litter after all, but a careful study and comparison of experiences in an organization problem is quite a different matter. We all realize that many points are still unsolved in respect to the rescue and care of wounded in battle, both on land and sea, and plans for work of this character should, it is thought, in the interests of wounded, form the most important part of any competition which has as its purposes the amelioration of their suffering.

Digitized by Google

One of the essays submitted in competition contemplated the adoption of a universal form of diagnosis tag. A report on this subject was subsequently made to the Conference. This would appear to be a thoroughly practical suggestion and the form for the tag might, it is believed, be agreed upon almost as easily as the Red Cross emblem.

It may be stated without fear of successful contradiction that the Ninth International Red Cross Conference as a whole accomplished as much or more work than any of its predecessors and that the many brilliant social entertainments which characterized it enabled the delegates to attain that degree of intimacy which is now considered essential at all similar gatherings in order to promote an exchange of ideas in a manner impossible at formal meetings.

Digitized by Google

NEWS OF THE SERVICES

HEADQUARTERS INDIANA NATIONAL GUARD,
Office Chief Medical Officer,
Indianapolis, May 7, 1912.

Examinations for vacancies have recently been held and the following officers having passed same have been promoted: Captain L. D. Carter has been promoted to Major and relieved from duty with the Artillery Battalion and assigned to command the Field Hospital, vice Wallace, retired. Captain Green has been transferred from the 3rd Infantry to the Artillery. Lieutenant Robinson has been promoted Captain and transferred from the 2nd Infantry to the 3rd Infantry. To fill two vacancies in the grade of Lieutenant, four men from the Hospital Corps were selected because of length of service and general efficiency and were ordered up for examination, it being understood that the two making the highest grade should be commissioned, provided their grade should be a passing one. Blanchard B. Pettijohn and John W. Emhardt were selected and were commissioned 1st Lieutenants, Medical Corps, and assigned to the Field Hospital. 1st Lieutenant Emhardt was later transferred as directed by S. O. to the 2nd Infantry. All these officers were examined by a board of medical officers appointed by S. O. Hdqtrs. I. N. G. Dr. James Hadley, a member of the hospital corps detachment at Frankfort, Ind., was also examined by this board and promoted to 1st Lieutenant, Medical Corps, and was assigned to the Ambulance Company, stationed at Frankfort, Ind., the detachment at that place having recently been designated as Ambulance Company, Number 1. A complete equipment has been requisitioned for this company, including the automobile ambulances.

Passed Assistant Surgeon S. B. Grubbs, of the Public Health and Marine-Hospital Service, has been directed to report to the commanding officer of the revenue-cutter Algonquin for temporary duty during the cruise of the cutter in Porto Rican waters.

Passed Assistant Surgeon L. L. Lumsden, of the Public Health and Marine Hospital Service, has recently been in Selma, Alabama, making an epidemiologic investigation of the prevalence of typhoid fever in that city.

Passed Assistant Surgeon A. J. McLaughlin, of the Public Health and Marine-Hospital Service, has been detailed to make an investigation into the precautions taken to prevent the spread of typhoid fever and other water-borne infectious diseases at points on the Missouri River watershed.

Passed Assistant Surgeon W. H. Frost, of the Public Health and Marine-Hospital Service, has been making an investigation of an epidemic of typhoid fever in the city of Des Moines, Iowa.

Digitized by Google

Passed Assistant Surgeon John McMullen, of the Public Health and Marine-Hospital Service, has been making an inspection of the examination of arriving aliens along the Canadian border of the United States.

Surgeon Taliaferro Clark, of the Public Health and Marine-Hospital Service, is at present making an investigation into the prevalence of trachoma on Indian reservations in the State of Minnesota.

Major T. C. Clark, who has been a member of the Minnesota National Guard since 1883, except a short time he was out of the service, has resigned and his resignation accepted. He enlisted as a private in Company K, April 5, 1883, but was soon promoted to the medical staff where he served, going from lieutenant to major. He has always been an efficient officer, serving with the 12th during the Spanish-American War at Chickamagua, where he contracted a case of typhoid fever, which nearly cost him his life. After the destructive fires at and near Beaudette he served as officer in charge of the suffering survivors, doing most excellent service. He resigned owing to his inability to devote the time necessary to his duties on the medical staff.

The following is the answer to the first of a series of problems issued to its officers by the Medical Department of the Arkansas National Guard.

All medical officers are required to attempt and send to the Chief Surgeon answers to the problems prior to the publication of the correct solution. The correct solution is given by a special committee from the Association of Military Surgeons of Arkansas. All Medical Officers are required to familiarize themselves with the correct solution and to keep a copy of it for reference.

Failure to attempt answers to the problems, courts suspension. Answers to problem No. 1 have been very creditably attempted by the entire personnel.

PROBLEM I.

MEDICAL DEPARTMENT, ARKANSAS NATIONAL GUARD.

The following order is received by a Medical Officer. What does he do?

SPECIAL ORDERS,
No. 10.

ADJUTANT GENERAL'S OFFICE,
Arkansas National Guard,
LITTLE ROCK, ARK., *February* 20, 1912.

Major C. D. Q., Medical Department, Arkansas N. G., with one sergeant, first class, and four privates, Hospital Corps, Arkansas N. G., will proceed to Camp Shootem, Ark., and report in person to the commanding officer of that station for temporary duty at the target range for a period of ten days, and upon completion of that duty they will return to their homes.

Officers and enlisted men will be equipped for field service.

The travel directed is necessary in the military service.

By order of Governor O. K.

P. D.,
Adjutant General.

Digitized by Google

I. What is the first step? What reports, etc.?
II. What supplies will be needed?
III. On breaking camp what steps are necessary?
IV. What reports? What disposition should be made of property and supplies?
V. What is meant by *Expendable* and *Non-expendable* property?
VI. In case of discovery of contagious disease, what steps shall be taken?

The Special Committee of THE ASSOCIATION OF MILITARY SURGEONS OF ARKANSAS gives the

CORRECT ANSWER.

I. (a) Acknowledge receipt of order by letter to Adjutant General.
(b) Procure uniform and equipment for officer and men as follows:

1. For Officer.

Uniform, service;
service hat with cord;
shirt, olive drab;
coat, service;
breeches, service;
boots, used with spurs, or shoes, russet, high, and leggins, russet, (spurs worn only when mounted);
gloves, (gauntlets);
identification tag;
saber;
saber belt and slings, russet;
saber knot, service;
first-aid packet and pouch;
watch;
note book and pencil.

Mounted equipment.
saddle;
bridle;
halter;
saddle blanket;
saddle cloth;
saber straps;
saddle bags;
meat can;
cup, aluminum;
knife;
fork;
spoon;
canteen;
horse brush;
curry comb;
surcingle;
nosebag;
lariats;
picket pin;
horse cover.

(This uniform with saber to be worn when reporting to Commanding Officer).

Clothing roll, canvas, to contain:

Sweater, regulation, (to be worn when sweater is worn by troops with which officer is serving);
clothing, extra;
toilet articles;
toilet paper;
personal effects.

Bedding roll, canvas, to contain:

comforter, for mattress;
blankets, 2 to 4;
pillow, small;
pillow cases, 2;
mosquito bar;
poncho;
slicker;
canvas basin;
canvas bucket;
lantern, folding;
candles for lantern;
cot, folding;
chair, folding;
table, folding;
canvas floor mat;
rope, 25 feet.

Digitized by Google

(The bedding roll and clothing roll adopted by the Q. M. D., can be purchased from the Depot Q. M., 26 Gray's Ferry Road, Philadelphia, for $6.28 and $3.12, respectively.)

Field allowance of field officer, 400 lbs. baggage. Trunk locker, Q. M. D., or trunk or telescope, 32x19x13 inches, not to exceed 100 pounds when packed.

Officer's uniform and equipment are his own personal property and must be bought from Government or private dealers.

2. For enlisted men, Hospital Corps:

Equipment to be worn on person.

Uniform (obtained from Quartermaster General by requisition on special blank forms furnished by him).
- service hat, cord sewed on;
- shirt, olive drab;
- coat, service;
- breeches, service;
- shoes, marching;
- leggins, canvas;
- identification tag;
- field belt (for breeches);

Equipment (obtained from Chief of Ordnance on requisition, except pouches and emergency cases, which are obtained from Surgeon General on requisition).
- waist belt;
- H. C. knife;
- haversack and strap;
- canteen and strap;
- meat can;
- cup;
- knife;
- fork;
- spoon;
- Hospital Corps pouch;
- orderly pouch (for orderly);
- Emergency case (for N. C. O.);
- first-aid packet (and pouch for same).

Service Kit, consisting of:

- Field kit;
- shelter tent half;
- shelter tent pole;
- shelter tent pins, 5;
- blanket;
- poncho;
- comb;
- housewife;
- soap, cake;
- tooth brush;
- socks, pair;
- towel;
- blanket roll straps (around blanket roll);

Surplus kit;
- drawers, pair;
- shoes, marching, pair;
- stockings, 2 pairs;
- undershirt;
- shoe strings, pair;
- sweater (to be worn instead of blouse in field).

(Surplus kit to be in charge of N. C. O., packed in kit bag containing eight surplus kits, and stored in Armory for campaign. Not to be taken to target camp.) (G. O. 118, W. D., 1911.)

(Field kit to be rolled into "blanket roll" as directed in Drill Regulations, H. C. To be carried on person of soldier or in wagon but always remaining under soldier's personal care.)

Note.—The surplus kit of each man will be packed as follows: Socks, to be rolled tightly, one pair in the toe of each shoe; shoes placed together,

Digitized by Google

CIRCULAR
No. 6.

WAR DEPARTMENT,
Office of the Surgeon General,
Washington, March 30, 1912.

The following data relating to the pack outfit for carrying medical supplies is published for the information of medical officers.

(Sgn.) GEORGE H. TORNEY,
Surgeon General, United States Army.

Approved:
By order of the Secretary of War.

LEONARD WOOD,
Major General, Chief of Staff.

The Medical Department pack outfit consists of the pack saddle proper and a number of accessory articles. The pack saddle proper is shown in figure 1; the accessory articles in figure 2.

THE PACK SADDLE PROPER.

No. 1. Pack frame, of metal	number	1
No. 2. Stretchers or spreaders for saddle pads, of corrugated metal	do	2
No. 3. Saddle pads	do	2
No. 4. Quarter straps	do	4
Nos. 5 and 6. Quarter strap ring sets, complete, consisting of 2 rings with leather union (5) and 2 cincha straps (6)	sets	2
No. 7. Cincha, horsehair, double	do	1
No. 8. Accessory leather strap	number	6
No. 9. Breast collar strap	do	2
No. 10. Breast collar body piece	do	1
No. 11. Breast collar neck piece	do	1
No. 12. Breast collar choke strap	do	1
No. 13. Fork straps for turnback	do	2
No. 14. Turnback and crupper, complete	do	1
No. 15. Breeching hip straps	do	1
No. 16. Breeching straps	do	1
No. 17. Breeching body piece	do	1
No. 18. Thongs, rawhide	do	6

ACCESSORY ARTICLES.

		Each.
No. 19. Cargo slings, webbing, complete with 4 straps	number	2
No. 20. Load cincha (belly piece) short, complete with 2 cinch straps	do	1
No. 21. Cupped blind, complete, with 2 thongs	do	1
No. 22. Load cincha (top piece), long, complete	do	1
No. 23. Cargo cover, canvas, 3 feet by 6 feet, with 14 rawhide thongs	do	1
No. 24. Mantas, canvas, 6 feet by 6 feet, with 20 rawhide thongs	do	2
No. 26. Bags, canvas, complete	do	2
No. 26. Saddle blanket	do	1

METHOD OF USING THE PACK OUTFIT.

As the pack outfits are issued from the supply depot, the pack saddle proper is assembled as shown in figure 1. The accessory articles are loosely packed in the shipping box.

Digitized by Google

To use the pack outfit, the pack saddle proper is placed on the animal with a saddle blanket under it. The breast collar and breeching are adjusted to the animal as required. The saddle is then firmly cinched in position. To prevent undesirable moving about on the part of the pack animal while the saddle and load are being placed in position, it is advisable to blindfold the animal by means of the cupped blind.

To load the animal, the webbing slings are placed on the ground with the link piece down. On it are placed such articles as may be desired. Chests, bedding rolls, boxes, etc., are conveniently carried in the sling; dressings, or a number of small pieces that are likely to be lost, can be put into canvas bags, and then placed in the slings. If desired, all articles may be previously wrapped in the canvas mantas to protect them from the elements. The sling is then securely fastened about the article by means of the leather straps secured to its metal rings.

The load is divided in such a manner that each sling will carry approximately the same weight.

The next step is to place the load on the animal. To do this, the loaded slings are raised from the ground and supported on the metal posts of the pack frame by means of the iron links on the sling. If possible both sides should be loaded at the same time and thus prevent turning the saddle on the animal's back.

The load is now protected by means of the canvas cargo cover, which is thrown over it and fastened by a number of its thongs. Over this is thrown the long canvas load cincha. By means of the short load cincha and its straps (which pass under the belly of the animal), the load can be securely fastened so that it will not shift.

Any additional load, such as sacks of grain, etc., for which there is not room in the slings, as well as such accessory articles as mantas, canvas bags, etc., not being used, are carried on the animal's back between the two sling loads, the long load cincha holding them in position when tightened. (Cuts are omitted.)

CIRCULAR
No. 7.

WAR DEPARTMENT,
Office of the Surgeon General,
Washington, April 24, 1912.

I. The following directions for the administration of the tyhoid prophylactic and the record thereof are published for the information of medical officers:

The first dose is ½ c. c. (7½ m.); the second and third are each 1 c. c. (15 m.). An interval of 10 days being allowed between doses, the entire course thus requires 20 days.

An interval of 10 days between doses has been adopted, because experience shows that nothing is gained by giving the doses closer together. The production of large quantities of specific antibodies does not become evident until about 8 to 10 days after administration; the second dose is therefore not given until the first has become effective, since there may be a temporary fall in the quantity of protective bodies

Digitized by Google

present in the serum after the administration of the second and third doses. It is not believed that there is any increased susceptibility to typhoid fever following the first dose. On the contrary, it is thought that increased resistance begins immediately, although the degree of immunity produced is not very high until after the lapse of 10 days.

If it is not convenient to give the second dose at the regular time it may be hastened a day or two or be postponed up to the fourteenth day, but good results can not be counted on after a longer period of time.

The site of the inoculation is the arm at the insertion of the deltoid muscle. The dose is to be given *subcutaneously* and not into the muscles nor into the skin. The arm should be cleansed as for any other operation. The use of Tr. iodine diluted with an equal volume of alcohol has proved satisfactory as a skin disinfectant. The dry skin is painted with the iodine before and after the hypodermic injection.

The glass container should be washed off in an antiseptic solution and opened after making one or more cuts near the top with a file. The prophylactic can be drawn out of the container with the syringe, or it may be emptied into a saltcellar which has been sterilized by boiling.

The syringe and needle should be sterilized by boiling in 2 per cent soda solution. To insure perfect sterilization draw the piston out to its full length, or remove it entirely, so that the barrel is full of water during the boiling. A fresh needle should be used for each man, or, if one needle must be used on two or more men, it must be plunged into boiling soda solution to resterilize it before each injection.

No person should be immunized who is not perfectly healthy and free from fever at the time. In case of doubt it is advisable to take the temperature and to examine the urine. If the man has fever or any other signs of illness, the prophylaxis should be postponed until he recovers. This precaution is necessary to avoid its administration to men who may be coming down with typhoid or other fevers.

The men should be cautioned not to drink beer or alcohol in any form on the day of treatment.

This prophylaxis is borne well by children and by women, using doses proportionate to the body weight, taking 150 pounds as the unit. Women should not be given the first dose during or near the time of the menstrual period.

The most suitable time for the admintstration of the prophylactic is about 4 o'clock in the afternoon, as the greater part of the reaction is then over before morning.

There is usually some headache and malaise, and a local reaction consisting of a red and tender area about the size of the palm of the hand; and sometimes tenderness in the axillary glands. The entire reaction is over in 48 hours. It is best not to require any duty for that period, nor to permit active exercise, such as long rides or walks.

Some individuals may be very susceptible and develop a marked general reaction (headache, backache, nausea, vomiting, herpes labialis, rarely albuminuria, and some loss of body weight). The number of such

Digitized by Google

reactions is exceedingly small, and regardless of their severity they all as a rule disappear completely inside of 48 hours. If any severe reactions should occur a report upon them in detail is desired.

The Widal reaction is always positive after typhoid prophylaxis; it appears in about 10 days after the first dose and remains positive for six months to a year. This fact must be considered in diagnosing typhoid in immunized persons; they give a positive Widal regardless of the nature of the illness, and the reaction is consequently of no assistance in making a diagnosis. *If typhoid is suspected the diagnosis should be confirmed by blood culture.* Bottles of bile medium for this purpose may be obtained of the Army Medical School, Washington, D. C., the Surgeon at Fort Leavenworth, Kans., or the Commanding Officer, Letterman General Hospital, San Francisco, Cal. Surplus prophylactic may be returned to the Army Medical School, Washington, D. C.

The date of the last injection of the typhoid prophylactic and the number of injections will be entered on the register and report card in every case of typhoid fever occurring in an officer or enlisted man. If the patient has not received the typhoid prophylactic a notation to that effect, stating the reason, will be entered on the register and report card. A medical history will be furnished in every case of typhoid fever occurring in an officer or enlisted man who has received the prophylactic, describing in detail the method of arriving at the diagnosis.

In addition to the notation on the descriptive and assignment card, a record will be kept at the hospital of each man immunized, showing the number of doses and the dates on which they were given.

The record card (Form 223-A, W. D., S. G. O.) formerly used to report the administration of the typhoid prophylaxis in the case of each individual has been discontinued. At the end of each month a record will be made in the blank space provided on the monthly Report of Sick and Wounded for variations of command, etc., showing the total number of cases, by organizations, immunized during the month. The number of men whose treatment has been begun but not completed will be recorded separately, by organizations. When no typhoid prophylactic has been administered during the month a statement to that effect will be made in this space.

The prophylactic should be stored in the ice box. It will keep for six months and perhaps longer when it is stored at low temperature in the dark, but it is desirable to administer it as soon after its preparation as is consistent with complete and thorough tests of its purity and sterility.

A fresh vial should be opened for each day's use. Any prophylactic remaining unused in an opened vial at the end of the day should be thrown away.

An excellent photograph of Major E. L. Munson, Medical Corps, U. S. A., who has been mainly responsible for the course of instruction in question, appeared on the first page of the menu card. The toasts as announced were as follows: "Cut down the Column," Colonel Morrison; "What's the answer, Gentlemen," Major Munson; and "It depends upon the terrain," Major Persons for the class.

Digitized by Google

An interesting feature of the dinner program was the following problem:

THE ARMY FIELD SERVICE AND CORRESPONDENCE SCHOOL FOR MEDICAL OFFICERS.

Field Problem No. 643782.

Your attention is particularly requested to the following field problem:

General Situation: A Red (maroon) force consisting of a dozen able bodied medical officers and one wounded medical officer is guarding supplies, mostly in bottle and kegs (also some beef on the plank) from a hostile force, largely consisting of Fort Leavenworth instructors, constables, and W. C. T. U. inspectors.

Special Situation, Maroon: The above mentioned supplies are in the new officers' mess and friendly natives have brought in word that the enemy may be expected to attack on May 9. Our forces will assemble at about 7.30 p. m. that date to repel the expected attack. The ambulance company will be on hand at a convenient point, safe from observation, to remove the disabled of both armies.

Special Situation, Blue: Colonel M, of the mixed troops, deciding that the remainder of his force may be disregarded, designates dress uniform, assembles the instructors of the Army Field Service School for Medical Officers (all Blue) at the New Officers' Mess, Fort Leavenworth, makes a short Napoleonic speech to encourage them, and ascends with his whole command upon the next higher contour (V. I.=20 feet). Upon arriving there his forces are met by a heavy fire from a battery firing in flash defilade behind a tablelike promontory of cocktails and caviar sandwiches. However, he succeeds in carrying the position by assault, and a hand-to-mouth contest takes place on the plateau for several hours.

Required: (a) The number of both sides able to walk to the Atchison Cross.

(b) The number able to walk to Lake Merritt.

(c) The number able to ride sitting up.

(d) The number requiring transportation recumbent.

(e) The number of non-transportable.

(f) The number of consequent courts-martial.

(g) The number left in the hands of the civil authorities.

(h) Make a detailed estimate of the effective strength at 8.00 a. m. May 10th.

Please reply to Lieut. Colonel Cooper, N. G., Hawaii, Officers' Club, Fort Leavenworth.

Dinner, New Officers' Club Mess, at 7.30, May 9th.

The following papers will be presented on June 1st and 3rd at the meeting of the American Medical Editors' Association at Marlborough-Blenheim Hotel, Atlantic City, N. J.:

"The Advisability of Newspapers and Magazines Having Medical Editors on their Staffs." By Edgar A. Vander Veer, M. D., Albany, N. Y.

"False Values in the Practice of Medicine." By H. Edwin Lewis, M. D., New York.

Digitized by Google

"Science in Personal Journalism." By T. D. Crothers, M. D., Hartford.

"Eugenics in the Medical Magazines." By C. H. Hughes, M. D,. St. Louis.

"The Province of the Editor in Medical Journalism." By W. B. Snow, M. D., New York.

"Commercialism." By C, F. Taylor, M. D., Philadelphia.

"Research Work in Life Insurance Medicine." By invitation, Fred'l L. Hoffman, Newark, Statistician Prudential Insurance Co.

"Shifting Medical Conditions Confronting Medical Journalism." By invitation, E. A. Ayers, M. D., Prof. Emeritus Obstetrics, New York Polyclinic.

"Medical Journalism from a Dis-interested Standpoint." By Albert E. Sterns, M. D., Indianapolis.

"What Doctors Read and Write." By Erwin Reissman, M. D., New York.

"Independent Medical Journalism and the Task of the Independent Editor of To-day." By W. J. Robinson, M. D., New York.

"Differential Diagnosis between the 'write-up' and an Honest Article on a New Remedy." By invitation, H. S. Baketel, M. D., New York.

"The Medical Editor of a Daily Newspaper, his Duties and his Educational Opportunities". By A. S. Burdick, M. D., Chicago.

"Medical Expert Testimony." By R. B. H. Gradwohl, M. D., St. Louis.

"Book Reviews." By Arnold Snow, M. D., New York.

"State Board Examination Questions and Answers in Medical Journals." By Hills Cole, M. D., New York.

"Subscription Getting." By G. Strobach, M. D., Cincinnati.

"Laboratory Experiments versus Clinical Experience as a Method in Determining the Therapeutic Value of a Remedy." By John W. Wainwright, M. D., New York.

"Anonymous vs. Personal Journalism." By Chas. A. Wingerter, M. D., Wheeling, W. Va.

"Subject to be Announced." By W. A. Young, M. D., Toronto, Canada.

"How the Medical Press can Co-operate with the Manufacturers for the Proper Introduction of New Materia Medica Science and Brands of the same to Commerce." By invitation, F. E. Stewart, Ph. G., M. D., Prof. of Materia Medica, School of Pharmacy, Medico-Chirurgical College, Philadelphia.

It is announced that the Fourteenth Annual Meeting of the American Proctologic Society will be held at Atlantic City, N. J., June 3 and 4, 1912.

heels at opposite ends, soles outward, wrapped tightly in underwear and bundle securely tied around the middle by the extra pair of shoe laces, each bundle to be tagged with the company number of the owner. These individual kits will be packed in the surplus kit bag in two layers of four kits each. (G. O. 118, W. D., 1911.)

(c) Inspect detachment uniformed and equipped.

(d) Present S. O. No. 10, A. G. O., A. N. G., to Quartermaster General for transportation request for officer and men and transportation re-

Digitized by Google

quest for sleeping car accommodations for officer and non-commissioned officer. Officer may pay for his own transportation personally, and collect reimbursement later on mileage vouchers sent in duplicate with two copies of order to nearest paymaster.

(e) Give orders to Hospital Corps for time and place of embarkation. (All supplies can be carried as baggage.)

(f) Make personal report of departure to Adjutant General by letter and to Surgeon General for information slip.

II. Other supplies obtained from Surgeon General, A. N. G., on special requisition:

1 detached service chest;
1 field desk (or necessary blanks);
2 lanterns, complete;
2 litters;
1 hatchet;
2 G. I. buckets;
1 nest of 3 white enamel buckets;
3 white enamel hand basins.

On arrival at Camp Shootem—

Call at Adjutant's office for formal report to commanding officer wearing uniform with side-arms and with spurs on boots (or without spurs, if shoes and leggins are worn). Report arrival of detachment to the Adjutant.

Mail personal report of arrival to Adjutant General and Surgeon General.

Procure one hospital tent for hospital and one wall tent for officer from Quartermaster on memorandum receipt, also in same manner one wall tent fly for sink.

Hospital Corps will be messed with companies, so that it will not be necessary for medical officer to draw rations.

III. Orders are issued by C. O., relieving Major C. Q. D., and detachment of H. C., from duty at Camp Shootem and directing compliance with S. O. No. 10.

(a) In general, the following administrative steps in part or whole, may be required, depending upon the character of the hospital. In this particular case only those steps will be required which are underlined.

1. Transfer patients to such places as may be directed in orders from A. G.

2. Report closing of hospital.
3. Complete sick and wounded report.
4. Complete H. C. return.
5. Complete Hospital fund return.
6. Invoice medical property to Surgeon General or such officer as he may direct and complete return.
7. Report change of station, H. C.
8. Forward personal reports, medical officers.
9. Close morning report of sick.

} To Surgeon General, A. N. G.

10. Letter files, orders and circulars.
11. Complete muster roll.
12. Close morning report detachment, H. C.
13. Complete report physical examination of recruits.

} To the Adjutant General.

14. Turn in all property held on memorandum receipt to source from which received and obtain back again all receipts given.

15. Complete ordnance return, 2 copies (send one copy to Chief of Ordnance, retain one copy as personal record).

Digitized by Google

16. Make report of sanitary condition prevailing during time in camp and at time of closing hospital to Surgeon General, A. N. G.

(b) Apply to Quartermaster for return transportation for officer and H. C. detachment, if same was not issued on original request before leaving home.

(c) Prepare pay and mileage vouchers in accordance with requirements of paymaster.

IV. *Expendable property* is that which can be used for the purpose for which it is intended to be used and can, when consumed or worn out in service, be dropped from the property return with a statement to that effect.

Non-expendable property is that which can not be dropped from the property return except by transfer on invoice and receipt, under proper authority or by some other process authorzied by regulations.

V. When contagious disease is discovered—

(a) Isolate. Screen, if necessary. Disinfect tents and equipment. Vaccinate or inoculate.

(b) Report nature and extent of epidemic to Commanding Officer. Make indicated recommendations to Commanding Officer for publication in quarantine order prescribing in detail necessary precautions to preserve health of command.

(c) Report to Surgeon General, A. N. G.

(d) Report to local health officer.

(e) Make requisition for needed supplies.

(f) Report to Surgeon General on blank form of epidemic diseases at end of month. Make special report to Surgeon General at close of epidemic giving history complete.

(g) Telegraph to nearest relative in case of death.

(h) Report to the Adjutant, giving rank, organization, date, time, place and cause of death and present location of the body.

PROBLEM II.

MEDICAL DEPARTMENT, ARKANSAS NATIONAL GUARD.

While in camp on duty as medical officer, it is reported to you that several cases of intestinal troubles have been reported and that the kitchen surroundings of Company K are not what they should be: (a) What should they be? (b) What will be your first step toward correcting the trouble? To whom would you apply for relief? (c) What officers and non-commissioned officers will be involved, and why? (d) What report will you make, and to whom?

On May 9, 1912, a dinner was given at Fort Leavenworth, Kansas, by the first class, Field Service School for Medical Officers. It is reported that this dinner was equally a success with the course of instruction which is universally admitted to have been of great benefit to all in attendance.

II. Circular 4, S. G. O., June 5, 1911, and paragraphs I and II, Circular 5, S. G. O., October 24, 1911, are hereby superseded.

(Sgn.) GEO. H. TORNEY,
Surgeon General, U. S. Army.

Approved:

By order of the Secretary of War:

LEONARD WOOD,
Major General, Chief of Staff.

Digitized by Google

Index

ALCOHOLIC Drinks and Narcotics, Review of, 350.

Ambulance Company, The Mission of the, 163.

Anti-typhoid Vaccination, 455.

Anti-typhoid Vaccination, Discussion upon, 227.

Anti-typhoid Vaccination in Morocco, Results of, 228.

Anti-typhoid Vaccination with Wright's Vaccin and Polyvalent Vaccins, Results of, 226.

Arteriosclerosis of Heart and Aorta is Often Due to Syphilis, 93.

ASHFORD, MAHLON, First Lieutenant, Medical Corps, U. S. A. The Mission of the Ambulance Company, 163.

Association of Military Surgeons of the United States, Constitution and By-Laws of the, 533.

BALANTIDIUM Coli as a Cause of Dysentery in the Philippine Islands, 694.

BARBER, JOHN R., First Lieutenant, Medical Corps, U. S. A. Report of the U. S. Army Board for the Study of Tropical Diseases as they Exist in the Philippine Islands, 306, 409, 675.

Barnett's Handbook on Military Sanitation for Regimental Officers, Review of, 350.

Battle of Bull Run, The. The Medical Department of the Army in the Civil War, 644.

Battle of the Wilderness, The. The Medical Department of the Army in the Civil War, 369.

BEYER, HENRY G., Medical Director, U. S. N. The "International Hygiene Ausstellung, Dresden, 1911," 125.

Bilom-bara in Madagascar, The, 95.

Binnie's Manual of Operative Surgery, Review of, 237.

BLECH, GUSTAVUS M., American Red Cross Field Corps. The Russian Army Medical Service in Manchuria—A Critical Review of Some of its Phases, 514.

BRATTON, THOMAS H., Major, Medical Corps, U. S. A. A Case of Strangulated Inguinal Hernia, 707.

British Army, Report of the Health of the, for the Year 1910, Review of, 233.

Browning's Recent Methods in the Diagnosis and Treatment of Syphilis, Review of, 466.

Bullet, The Pointed, 231.

CALCUTTA Post Mortem Records, Gleanings from the, 721.

Cancer, Gastric, 94.

Cardiac Neuroses and their Importance for the Military Surgeon, 336.

CHAMBERLAIN, WESTON P., MAJOR, Medical Corps, President of the United States Army Medical Board for the Study of Tropical Diseases as they Exist in the Philippine Islands. Typhoid Fever in the Philippine Islands, 53.

CHAMBERLAIN, WESTON P., MAJOR, Medical Corps, U. S. A. Report of the U. S. Army Board for the

Digitized by Google

Study of Tropical Diseases as they Exist in the Philippine Islands, 306, 409, 675.
Chest Wound, Prolapse of Lung in Penetrating, 597.
Civil War, The Medical Department of the Army in the,—The Battle of Bull Run, 644.
Civil War, The Medical Department of the Army in the. The Battle of the Wilderness, 369.
Clinical Immunity and Sero-Diagnosis, Review of, 108.
COLE, CLARENCE L., Captain, Medical Corps, U. S. A. Leucopenia, 704.
Constabulary Versus National Guard, 397.
Constitution and By-Laws of the Association of Military Surgeons of the United States, 533.
Contagious Diseases on Board Ship, 565.
Cooking, Field, 719.
COOPER, ALEXANDER T., First Lieutenant, Medical Corps, U. S. A. Some Tests as to the Efficacy of Chlorinated Lime in Purifying Drinking Water, 574.
Current Literature, 92, 224, 336, 451, 591, 716.

DIPHTHERIA BACILLUS, Note upon an Unusual Form of, 462.
Diseases of the Soldier, Studies in the Etiology of, 591.
Disinfection of the Skin by Tincture of Iodine and its Application in War, 230.
Dresden Exhibition, 1911, 125.
Drinking Water, Some Tests as to the Efficacy of Chlorinated Lime in Purifying, 574.
DUNCAN, LOUIS C., Captain, Medical Corps, U. S. A. The Medical Department of the Army in the Civil War. The Battle of Bull Run, 644.
DUNCAN, LOUIS C., Captain, Medical Corps, U. S. A. The Medical Department of the Army in the Civil War. The Battle of the Wilderness, 369.
Dysentery, Epidemic, 97.

EDWARDS, J. F., Major, Medical Corps, Pennsylvania National Guard. The Adaptation of the Medical Service of the National Guard to That of the Army, 43.
Evacuation of Sick and Wounded from an Army in the Field, The Clearing Hospital and the, 344.

FIBROMA MOLLUSCUM, 98.
FIELD, P. C., Major, Medical Corps, U. S. A. Observation of Eye, Ear, Nose, Mouth and Throat in Leprosy, 699.
Fistula of Amebic Origin, Entero Vesical, 584.
Foot and Foot Wear, A Study of the, 170.
FRENCH, SANFORD W., First Lieutenant, Medical Corps, U. S. A. The Value of Medical Statistics, 578.
FRONK, CLARENCE E., First Lieutenant, Medical Corps, U. S. A. Gunshot Wound of Gall Bladder, 692.

GARTON, W. M., Surgeon, U. S. N. A New Diet for Typhoid Fever, with Notes, 291.
Gastro-intestinal Disease, Epidemic of, 456.
Germany and Austria-Hungary, Medico-Military Affairs in, 600.
Gonorrhoea, Report of Skin Complications of, 686.
Gonorrhoeal Prophylaxis, Calomel in, 590.

Digitized by Google

Gould's Pocket Medical Dictionary, Review of, 351.
Guiteras' Urology, Review of, 605
Gunshot Wound of Gall Bladder, 692.

HALL, JOSEPH A., Lieutenant Colonel, Chief Surgeon of Division, Ohio National Guard. The Efforts of Ohio During the Past Year, 18.
HENRY, REGINALD B., Assistant Surgeon, U. S. N. Calomel in Gonorrhoeal Prophylaxis, 590.
Hernia, A Case of Strangulated Inguinal, 707.
Hirsch's Compend of Genito-Urinary Diseases and Syphilis, Review of, 352.
Honan's Handbook to Medical Europe, Review of, 468.
Hospital Ships, Functions of, 459.
Hospital Ship, The. (Translation), 429.
HOWARD, DEANE C., Major, Medical Corps, U. S. A. Venereal Prophylaxis. A Supplementary Report, 401.
Hydrocele, A Modification of von Bergmann's Operation for, 221.
Hygiene of troops in Morocco, 229.
Hygiene, Post Exchanges from the Point of View of, 593.

INFECTIOUS Diseases Prevalent in Fez and Vicinity, The, 594.
Inoculation, Enteric, 99.
Insane in Time of War, Progress in the Methods for the Care of the. (Translation), 332.
Insanity in the Army, 457.
International Clinics, Review of, 237, 467.
"International Hygiene Ausstellung, Dresden, 1911," The, 125.
Intestinal Parasites in the Wardha District, 596.

KEAN, J. R., Lieutenant Colonel, Medical Corps, U. S. A. The Venereal Problem in the Army and Navy, 251.

LATRINE BOXES, Advantages of an Accepted Plan for, 580.
Leishmanioses, 341.
Leprosy, Nastin Treatment of, 97.
Leprosy, Observation of Eye, Ear, Nose, Mouth and Throat in, 699.
Leucopenia, 704.
LEVISON, CHARLES G., First Lieutenant, Medical Reserve Corps, U. S. A. Entero Vesical Fistula of Amebic Origin, 584.
Lindsay & Blakiston's Physician's Visiting List, Review of, 352.
Lippincott's New Medical Dictionary, Review of, 108.
LOWNDES, CHARLES H. T., Medical Inspector, U. S. N. Recruiting in the Navy, 560.

MALARIAL Prophylactic, Quinine as a, a Criticism, 98.
Malarial Prophylactic and Curative, Quinine as a, 719.
MATSON, RAY W., First Lieutenant, Medical Reserve Corps, U. S. A. Some Dangers of Salvarsan, 217.
Medical Aid to the Wounded at the Battle Near Benderges (Persia), Organization of. (Translation), 446.
Medical Service of the National Guard, The Adaptation of the, to That of the Army, 43.
Medical Statistics, The Value of, 578.
Meningococcus Carriers, Investigation of Healthy, 452.
Merriam's "Tin Soldiers," Review of, 724.
Military Absenteeism in War, with Special Reference to the Rela-

Digitized by Google

tion of the Medical Department Thereto, 489, 619.
Militia Sanitary Troops, The Conduction of Field Maneuvers of, 1.
Montgomery's Practical Gynecology, Review of, 351.
MORRILL, W. P., Captain, Medical Corps, Maryland N. G. Typhoid Prophylactic in the National Guard, 669.
MUNSON, EDWARD L., Major, Medical Corps, U. S. A., Director, Field Service School for Medical Officers, the Army Service Schools, Fort Leavenworth, Kansas. Military Absenteeism in War, with Special Reference to the Relation of the Medical Department Thereto. (*To be continued*), 489, 619.
MUNSON, EDWARD L., Major, Medical Corps, U. S. A., Director, Field Service School for Medical Officers, the Army Service Schools, Fort Leavenworth, Kansas. The Conduction of Field Maneuvers of Militia Sanitary Troops., 1.
Munson's Principles of Sanitary Tactics, Review of, 106.
Murphy's Surgical Clinics, Review of, 604.

NAVAL MEDICAL SCHOOL, Closing Remarks to the Graduating Class of the, on March 25, 1912, 485.
Naval War Between Japan and Russia, The Surgical and Medical History of the, Review of, 722.
News of the Services, 115, 244, 356, 472, 609, 729.
NICHOLS, HENRY J., Captain, Medical Corps, U. S. A. The Immediate Clinical Results of the Use of Salvarsan in the Army, 212.
Niles' Pellagra, Review of, 722.
Noguchi's Serum Diagnosis of Syphilis and the Butyric Acid Test for Syphilis, Review of, 107.

OHIO During the Past Year, The Efforts of, 18.
Onchocerciasis in Imported Meat, 100.

PARATYPHOID B. FEVER in Malta, An Outbreak of, 343.
Paratyphoid, Epidemic of, 340.
PATTERSON, ROBERT U., Major, Medical Corps, U. S. A. Some Remarks on Salvarsan, with Description of Apparatus for Intravenous Administration, 544.
Poliomyelitis, Acute Epidemic, 344.
Practical Medicine Series, The, Review of, 109, 466.
Prussian Army, Preliminary Yearly Sick Report of the Imperial, 595.
PUGH, W. S., Passed Assistant Surgeon, U. S. N. Report of Skin Complications of Gonorrhoea, 686

RABIES and its Prophylaxis in the French Army, 224.
Rachicentesis in Sunstroke, 95.
REASONER, MATHEW A., Captain, Medical Corps, U. S. A. Some Dangers of Salvarsan, 217.
Recruiting in the Navy, 560.
Reviews, 106, 233, 349, 466, 603, 722.
ROSSITER, P. S., P. A. Surgeon, U. S. N. A Modification of von Bergmann's Operation for Hydrocele, 221.
Rubber Gloves, Steam Sterilization of, 343.
Russian Army Medical Service in Manchuria—A Critical Review of Some of its Phases, The, 514.

Digitized by Google

ST. JOHN Ambulance Brigade, Report on the Coronation Durbar Contingent of the (Reprint), 709.
St. Mary's Hospital, Collected Papers by the Staff of. (Mayo Clinic), Review of, 236.
Salvarsan in the Army, The Immediate Clinical Results of the Use of, 212.
Salvarsan, Some Dangers of, 217.
Salvarsan, Some Remarks on, with Description of Apparatus for Intravenous Administration, 544.
Sanitary Inspection of the "Admiral Aube," 225.
Sanitary Service of the Japanese Navy, 591.
Sanitary Status of the French Troops in Morocco, The, 94.
Sanitary Train, Russian Field War, (Translation), 715.
Scudder's Treatment of Fractures, Review of, 604.
Service Examination, Appointment to the, 463.
Straub's Medical Service in Campaign, Review of, 349.
Sunstroke and Insolation, 456.
Sunstroke, Treatment of, 594.
Syphilis, Cure of Grave, by Arsenic, 598.
Syphilis in Tibet, 597.

TESTICLE, Treatment of Undescended, 717.
Thirst, Lack of, 717.
Thornton's Medical Pocket Formulary, Review of, 606.
Transportation of Wounded on Modern Ships, 453.
Tropical Diseases as they Exist in the Philippine Islands, Report of the U. S. Army Board for the Study of, 306, 409. 675.
Tropical Hygiene for Anglo-Indians and Indians, Review of, 110.
Tuberculosis, Prevention of Human, of Bovine Origin, 346.
Tuberculosis Problem in the Russian Navy, The, 102.
Typhoid Epidemics, Origin of, 451.
Typhoid Fever, A New Diet for, with Notes, 291.
Typhoid Fever, Epidemic of, 596.
Typhoid Fever in the Philippine Islands, 53.
Typhoid Fever, Treatment in, 297.
Typhoid Prophylactic in the National Guard, 669.

VACCINATION by Igni-puncture, 92.
VEDDER, EDWARD B., Captain, Medical Corps, U. S. A. Report of the U. S. Army Board for the Study of Tropical Diseases as they Exist in the Philippine Islands, 306, 409, 675.
Venereal Diseases, Prevention of, 465.
Venereal Patients in the Cronstadt Naval Hospital, 104.
Venereal Problem in the Army and Navy, The, 251.
Venereal Prophylaxis. A supplementary Report, 401.
Venereal Prophylaxis in the Fleet, 102.
Ventilation in Modern Battleships, 104.
Voyage Reminiscences, 464.

WASDIN, EUGENE, Surgeon, U. S. Public Health and Marine Hospital Service (Obituary), 114.
WEED, F. W., Captain, Medical Corps, U. S. A., A Study of the Foot and Foot Wear, 170.
Wellcome Tropical Research Laboratories at the Gordon Memorial College, Khartoum, Fourth Report of the, Review of, 468, 469.

Digitized by Google

Wells' Manual of First Aid for Laymen, Review of, 603.
WERTENBAKER, CHARLES P., Surgeon, U. S. P. H. & M.-H. S. Treatment in Typhoid Fever, 297.
WESTON, H. R., First Lieutenant, Medical Reserve Corps, U. S. A. Balantidium Coli as a Cause of Dysentery in the Philippine Islands, 694.
Wound Dressing with Tincture of Iodine and Gum Mastic, 96.

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google